

EPA notes that it has determined, pursuant to CWA section 303(c)(4)(B), that numeric values are not necessary to meet CWA requirements with respect to downstream protection in Florida. Although EPA believes that Florida's downstream protection provisions, described above, will provide for quantitative processes to ensure the attainment and maintenance of downstream waters, EPA does not believe that the provisions themselves consist of numeric values. EPA does believe that the provisions protect designated uses. However, because EPA is currently subject to a consent decree deadline to sign proposed numeric downstream protection values (DPVs) for Florida by November 30, 2012, EPA is taking such action to comply with the consent decree. EPA will, however, be asking the court to modify the consent decree consistent with the Agency's determination, i.e., to modify the consent decree to not require EPA to promulgate numeric DPVs for Florida.

For the reasons outlined above, the State's downstream protection provisions in 62-302.531(4), 62-302.800(3), 62-302.800(3)(a)3., 62-303.390(2)(a), and 62-303.450(4) are approved by the EPA pursuant to CWA section 303(c) subject to the district court modifying the consent decree to not require EPA to promulgate numeric DPVs for Florida.

Subsection 62-302.531(5)

To qualify as temporally independent samples, each SCI shall be conducted at least three months apart. SCIs collected at the same location less than three months apart shall be considered one sample, with the mean value used to represent the sampling period.

This provision is related to data distribution requirements and does not establish or revise the magnitude, duration, or frequency of a criteria established by the State. Therefore, the EPA has concluded that this provision does not constitute a new or revised water quality standard.

Subsection 62-302.531(6)

To calculate an annual geometric mean for TN, TP, or chlorophyll *a*, there shall be at least four temporally-independent samples per year with at least one sample taken between May 1 and September 30 and at least one sample taken during the other months of the calendar year. To be treated as temporally-independent, samples must be taken at least one week apart.

This provision is related to data sufficiency requirements and does not establish or revise the magnitude, duration or frequency of the revised criteria. Therefore, the EPA has concluded that this provision does not constitute a new or revised water quality standard.

Subsection 62-302.531(7)

The numeric interpretation of the narrative nutrient criterion shall be applied over a spatial area consistent with its derivation.

(a) For numeric interpretations based on paragraph 62-302.531(2)(a), F.A.C., the spatial application of the numeric interpretation is as defined in the associated order or rule.

(b) For lakes covered under subparagraph 62-302.531(2)(b)1., F.A.C., the numeric interpretation shall be applied as a lake-wide or lake segment-wide average.

(c) For spring vents covered under subparagraph 62-302.531(2)(b)2., F.A.C., the numeric interpretation shall be applied in the surface water at or above the spring vent.

(d) For streams covered under paragraph 62-302.531(2)(c), F.A.C., the spatial application of the numeric interpretation shall be determined by relative stream homogeneity and shall be applied to waterbody segments or aggregations of segments as determined by the site-specific considerations.

This provision describes how four types of numeric interpretations will be applied spatially. The provision applies to site-specific criteria associated with 62-302.531(2)(a), lakes, spring vents, and streams. Site-specific criteria adopted to formalize specific orders or rules are to be adopted consistent with the spatial application developed at the time of those orders or rules. When applying the criteria established for lakes, spring vents and streams in paragraphs 62-302.531(2)(b) and (c), the State's intention is that the criteria apply at a representative location for the given waterbody type. In each case, the State's criteria derivation is consistent with how the spatial application is detailed in this particular provision. The State's intention is to aggregate those segments that are similar, but not aggregate those which are distinctly different. On pages 28 and 44 of the Nutrient Standards Implementation Document, the State provides the following examples regarding the State's interpretation of the rule provision.

Except for extremely large lakes (e.g., Lake Okeechobee, which has been subdivided), the lakes criteria apply to lakewide averages. ...For streams, the spatial application of the numeric interpretation shall be determined by relative stream homogeneity and shall be applied to waterbody segments or aggregations of segments as determined by the site-specific considerations. The stream nutrient thresholds were derived through a distributional analysis of data from homogeneous reference stream segments, with the spatial extent of each stream segment typically measuring approximately five linear miles. Two or more stream segments may be combined if the nutrient data are homogeneous, which is evaluated through routine statistical tests, such as Analysis of Variance or Student's t-test, and if the results show that the segments are not significantly different at the 90 percent confidence level. Data will be transformed (e.g., log) prior to statistical analysis if the data are not normally distributed. (Page 28)

Where a SSAC is the applicable interpretation, a QBEL is derived to ensure that the discharge does not cause or contribute to an exceedance of the SSAC within the spatial area to which the SSAC is applicable (e.g. if a SSAC for a stream segment has been established as an annual geometric mean of 40 µg/L total phosphorus, the QBEL is calculated to ensure that the discharge does not cause or contribute to the stream segment exceeding an annual geometric mean of 40 µg/L), in all years. (Page 44)

The State has provided examples to put some bounds on how large or small a segment, or aggregation of segments, could be and what the process for making such a decision would be based on. Since states are required to adopt criteria that protect their designated uses, describing the spatial extent consistent with the criteria derivation that protects the uses ensures that the spatial application of the criteria is also protective. As a result, the EPA finds that this provision is consistent with 40 CFR Part 131 and the CWA, and is approved by the EPA pursuant to CWA section 303(c).

Subsection 62-302.531(8)

Load-based or percent reduction-based nutrient TMDLs or Level II Water Quality Based Effluent Limitations (QBELs) pursuant to Chapter 62-650, F.A.C., do not need to be converted

into concentration-based nutrient TMDLs or WQBELs to be used as the basis for the numeric interpretation of the narrative criterion. For percent reduction-based nutrient TMDLs, the associated allowable load or concentration is the numeric interpretation of the narrative criterion for the waterbody.

This provision clarifies the State's intentions to allow criteria to be derived in formats outside the traditional concentration-based format of many water quality criteria. This provision does not establish any magnitude, duration, or frequency and therefore is not be considered to be a new or revised water quality standard. Any future changes to water quality standards that are based on TMDLs or WQBELs will be reviewed by the EPA, following submittal by the State, to determine whether the submitted water quality criteria are protective of the designated use(s) and consistent with the CWA and its implementing regulations.

Subsection 62-302.531(9)

The Commission adopts rules 62-302.200(4), .200(16)-(17), .200(22)-(25), .200(35)-(37), .200(39), 62-302.531, and 62-302.532(3), F.A.C., to ensure, as a matter of policy, that nutrient pollution is addressed in Florida in an integrated, comprehensive and consistent manner. Accordingly, these rules shall be effective only if EPA approves these rules in their entirety, concludes rulemaking that removes federal numeric nutrient criteria in response to the approval, and determines, in accordance with 33 U.S.C. § 1313(c)(3), that these rules sufficiently address EPA's January 14, 2009 determination. If any provision of these rules is determined to be invalid by EPA or in any administrative or judicial proceeding, then the entirety of these rules shall not be implemented.

This provision does not constitute a new or revised water quality standard. It does not establish or revise designated uses for any waters or criteria protecting those uses. It also does not establish or revise any antidegradation policies for Florida waters. Therefore, the EPA is taking no action to approve or disapprove this provision pursuant to section 303(c) of the CWA.

As set out more fully elsewhere in this document, the EPA has reviewed each of the Rule provisions referenced in this subsection to determine whether the provisions constitute new or revised water quality standards as that term is used in section 303(c) of the CWA or the regulations at 40 C.F.R. Part 131. The EPA has determined that rules 62-302.200(4), .200(16), .200(17) [except as noted below], .200(22)-(25), .200(35)-(36), .200(37) [except as noted below], and 62-302.531 [except as noted below], F.A.C., constitute new or revised water quality standards subject to Agency review pursuant to section 303(c) of the Act. The EPA has reviewed those sections and approved them as consistent with the requirements of the CWA. The EPA has determined that rules 62-302.200(17) [specifically the two referenced documents], .200(37) [specifically the two referenced documents, excepting those provisions determined to be new or revised standards as detailed in the EPA's review of the provision 62-302.531(2)(c).], .200(39), 62-302.531 [specifically .531(1), a portion of .531(2)(b)1.c, .531(3), .531(5)-(6), and .531(8)-(9)], and 62-302.532(3), F.A.C., do not constitute new or revised water quality standards and, therefore, are not subject to the EPA review and approval or disapproval under the CWA. The fact that the EPA has not reviewed or acted upon those provisions that it determined are not new or revised water quality standards does not mean that the EPA has disapproved those provisions or that the EPA has made a determination that the provisions are invalid pursuant to the CWA.

Numeric Nutrient Criteria for Estuaries

Section 62-302.532

Introduction

Florida added this section 62-302.532 to provide numeric interpretations of the State's narrative nutrient criterion applicable to estuaries and marine waters which are defined by FDEP as coastal waters, and further described in the following paragraph. The provisions establish estuary-specific numeric interpretations for a designated portion of the State marine waters in subsection 62-302.532(1) along with a geographic coverage defining the applicability of those estuary specific numeric interpretations with keyed maps for a portion of Florida coastal marine waters (subsection 62-302.532(2)), and a schedule for the intended future development of numeric interpretation of the State's narrative nutrient criterion for the remaining coastal marine waters (subsection 62-302.532(3)).

While the term "estuary" is not specifically defined within this rule, the effective definition is provided by the State in supporting documentation. On page 2 of FDEP's Marine Overview TSD the State has said that "Florida water quality standards do not define 'estuaries'. Instead, they define "coastal waters" as "all waters in the state that are not classified as fresh waters or as open waters" and further define "open waters" as "all waters in the state extending seaward from the most seaward 18-foot depth contour line (3-fathom bottom depth contour) which is offshore from any island; exposed or submerged bar or reef; or mouth of any embayment or estuary which is narrowed by headlands. Contour lines shall be determined from Coast and Geodetic Survey Charts." The State cites the EPA's Nutrient Criteria Technical Guidance Manual (EPA 2001) as broadly defining estuaries to include all shallow coastal ecosystems, including "tidal rivers, embayments, lagoons, coastal river plumes, and river dominated coastal indentations," and defining coastal waters as those that "lie between the mean highwater mark of the coastal baseline and the shelf break, or approximately 20 nautical miles offshore when the continental shelf is extensive." The State therefore concluded, "Thus, "coastal waters" as defined in Florida's water quality standards are equivalent to the EPA's definition of estuary, and "open waters" are equivalent to the EPA's term "coastal waters."" Based on this clarification, it is the EPA's understanding that the "estuary specific numeric interpretations of the narrative nutrient criterion" provided in this rule, or committed to in a schedule for future adoption, apply only to what the EPA considers estuarine and nearshore marine waters, and as such, do not apply to offshore coastal marine waters extending out to the 3-mile limit of State waters. It remains the EPA's understanding that those offshore coastal marine waters out to the 3-mile limit of State waters will continue to be covered by the State's existing narrative criterion for nutrients.

The intended specific spatial applicability of these estuary values is further defined in FDEP's Marine Overview TSD, on page 2, where the State says "criteria developed for open estuaries should not apply to tidal creeks, embayments, or marine lakes, even if they meet the definition of predominantly marine waters." And the continuation on page 64 states "that if nutrients in the open water areas of a given estuary are acceptable, then nutrients in the adjacent wetland influenced tidal creeks should also be deemed non-problematic."

The State further adds, "[s]imilarly, because the ongoing criteria development for Florida systems is based on the mixed, open water portions of bays and lagoons, samples collected at the mouths of tributary rivers or streams would generally not be representative of the mixed, open water portions.

Therefore, nutrient values at such sites would not be part of the original data distribution from which the criteria were developed, and it would be inappropriate to use data from those sites to assess compliance." The State will apply the narrative criteria for waters not covered by numeric criteria. The EPA notes that although there are certain estuaries to which numeric criteria do not currently apply, the downstream protection approach will go into effect once either the EPA promulgates criteria or State-adopted criteria are approved by the EPA, according to the schedule at 62-302.532(3).

Each subsection within 62-302.352 (Estuary-Specific Numeric Interpretations of Narrative Nutrient Criteria) is shown below, followed by the EPA's analysis and conclusion for each grouping.

Subsection 62-302.532(1)

Estuary-specific numeric interpretations of the narrative nutrient criterion in paragraph 62-302.530(47)(b), F.A.C., are in the table below. The concentration-based estuary interpretations are open water, area-wide averages. The interpretations expressed as load per million cubic meters of freshwater inflow are the total load of that nutrient to the estuary divided by the total volume of freshwater inflow to that estuary.

<u>Estuary</u>	<u>Total Phosphorus</u>	<u>Total Nitrogen</u>	<u>Chlorophyll <i>a</i></u>
<u>(a) Clearwater Harbor/St. Joseph Sound</u>	<u>Annual geometric mean values not to be exceeded more than once in a three year period. Nutrient and nutrient response values do not apply to tidally influenced areas that fluctuate between predominantly marine and predominantly fresh waters during typical climatic and hydrologic conditions.</u>		
<u>1. St. Joseph Sound</u>	<u>0.05 mg/L</u>	<u>0.66 mg/L</u>	<u>3.1 µg/L</u>
<u>2. Clearwater North</u>	<u>0.05 mg/L</u>	<u>0.61 mg/L</u>	<u>5.4 µg/L</u>
<u>3. Clearwater South</u>	<u>0.06 mg/L</u>	<u>0.58 mg/L</u>	<u>7.6 µg/L</u>
<u>(b) Tampa Bay</u>	<u>Annual totals for nutrients and annual arithmetic means for chlorophyll <i>a</i>, not to be exceeded more than once in a three year period. Nutrient and nutrient response values do not apply to tidally influenced areas that fluctuate between predominantly marine and predominantly fresh waters during typical climatic and hydrologic conditions.</u>		
<u>1. Old Tampa Bay</u>	<u>0.23 tons/million cubic meters of water</u>	<u>1.08 tons/million cubic meters of water</u>	<u>9.3 µg/L</u>
<u>2. Hillsborough Bay</u>	<u>1.28 tons/million cubic meters of water</u>	<u>1.62 tons/million cubic meters of water</u>	<u>15.0 µg/L</u>
<u>3. Middle Tampa Bay</u>	<u>0.24 tons/million</u>	<u>1.24 tons/million cubic meters of</u>	<u>8.5 µg/L</u>

	<u>cubic meters of water</u>	<u>water</u>	
<u>4. Lower Tampa Bay</u>	<u>0.14 tons/million cubic meters of water</u>	<u>0.97 tons/million cubic meters of water</u>	<u>5.1 µg/L</u>
<u>5. Boca Ciega North</u>	<u>0.18 tons/million cubic meters of water</u>	<u>1.54 tons/million cubic meters of water</u>	<u>8.3 µg/L</u>
<u>6. Boca Ciega South</u>	<u>0.06 tons/million cubic meters of water</u>	<u>0.97 tons/million cubic meters of water</u>	<u>6.3 µg/L</u>
<u>7. Terra Ceia Bay</u>	<u>0.14 tons/million cubic meters of water</u>	<u>1.10 tons/million cubic meters of water</u>	<u>8.7 µg/L</u>
<u>8. Manatee River Estuary</u>	<u>0.37 tons/million cubic meters of water</u>	<u>1.80 tons/million cubic meters of water</u>	<u>8.8 µg/L</u>
<u>(c) Sarasota Bay</u>	<u>Annual geometric mean values for nutrients and annual arithmetic means for chlorophyll <i>a</i>, not to be exceeded more than once in a three year period. Nutrient and nutrient response values do not apply to tidally influenced areas that fluctuate between predominantly marine and predominantly fresh waters during typical climatic and hydrologic conditions.</u>		
<u>1. Palma Sola Bay</u>	<u>0.26 mg/L</u>	<u>0.93 mg/L</u>	<u>11.8 µg/L</u>
<u>2. Sarasota Bay</u>	<u>0.19 mg/L</u>	<u>See paragraph 62-302.532(3)(i), F.A.C.</u>	<u>6.1 µg/L</u>
<u>3. Roberts Bay</u>	<u>0.23 mg/L</u>	<u>0.54 mg/L</u>	<u>11.0 µg/L</u>
<u>4. Little Sarasota Bay</u>	<u>0.21 mg/L</u>	<u>0.60 mg/L</u>	<u>10.4 µg/L</u>
<u>5. Blackburn Bay</u>	<u>0.21 mg/L</u>	<u>0.43 mg/L</u>	<u>8.2 µg/L</u>
<u>(d) Charlotte Harbor/Estero Bay</u>	<u>Annual arithmetic mean values for nutrients and annual arithmetic means for chlorophyll <i>a</i>, not to be exceeded more than once in a three year period. Nutrient and nutrient response values do not apply to tidally influenced areas that fluctuate between predominantly marine and predominantly fresh waters during typical climatic and hydrologic conditions.</u>		
<u>1. Dona and Roberts Bay</u>	<u>0.18 mg/L</u>	<u>0.42 mg/L</u>	<u>4.9 µg/L</u>
<u>2. Upper Lemon Bay</u>	<u>0.26 mg/L</u>	<u>0.56 mg/L</u>	<u>8.9 µg/L</u>
<u>3. Lower Lemon Bay</u>	<u>0.17 mg/L</u>	<u>0.62 mg/L</u>	<u>6.1 µg/L</u>

<u>4. Charlotte Harbor Proper</u>	<u>0.19 mg/L</u>	<u>0.67 mg/L</u>	<u>6.1 µg/L</u>
<u>5. Pine Island Sound</u>	<u>0.06 mg/L</u>	<u>0.57 mg/L</u>	<u>6.5 µg/L</u>
<u>6. San Carlos Bay</u>	<u>0.07 mg/L</u>	<u>0.56 mg/L</u>	<u>3.5 µg/L</u>
<u>7. Tidal Myakka River</u>	<u>0.31 mg/L</u>	<u>1.02 mg/L</u>	<u>11.7 µg/L</u>
<u>8. Matlacha Pass</u>	<u>0.08 mg/L</u>	<u>0.58 mg/L</u>	<u>6.1 µg/L</u>
<u>9. Estero Bay (including Tidal Imperial River)</u>	<u>0.07 mg/L</u>	<u>0.63 mg/L</u>	<u>5.9 µg/L</u>
<u>(e) Tidal Cocohatchee River/Ten Thousand Islands</u>	<u>Annual geometric means that shall not be exceeded more than once in a three year period</u>		
<u>1. Tidal Cocohatchee River</u>	<u>0.057 mg/L</u>	<u>0.47 mg/L</u>	<u>5.8 µg/L</u>
<u>2. Collier Inshore</u>	<u>0.032 mg/L</u>	<u>0.25 mg/L</u>	<u>3.1 µg/L</u>
<u>3. Rookery Bay/Marco Island</u>	<u>0.046 mg/L</u>	<u>0.30 mg/L</u>	<u>4.9 µg/L</u>
<u>4. Naples Bay</u>	<u>0.045 mg/L</u>	<u>0.57 mg/L</u>	<u>4.3 µg/L</u>
<u>5. Inner Gulf Shelf</u>	<u>0.018 mg/L</u>	<u>0.29 mg/L</u>	<u>1.6 µg/L</u>
<u>6. Middle Gulf Shelf</u>	<u>0.016 mg/L</u>	<u>0.26 mg/L</u>	<u>1.4 µg/L</u>
<u>7. Outer Gulf Shelf</u>	<u>0.013 mg/L</u>	<u>0.22 mg/L</u>	<u>1.0 µg/L</u>
<u>8. Blackwater River</u>	<u>0.053 mg/L</u>	<u>0.41 mg/L</u>	<u>4.1 µg/L</u>
<u>9. Coastal Transition Zone</u>	<u>0.034 mg/L</u>	<u>0.61 mg/L</u>	<u>3.9 µg/L</u>
<u>10. Gulf Islands</u>	<u>0.038 mg/L</u>	<u>0.44 mg/L</u>	<u>3.4 µg/L</u>
<u>11. Inner Waterway</u>	<u>0.033 mg/L</u>	<u>0.69 mg/L</u>	<u>5.2 µg/L</u>
<u>12. Mangrove Rivers</u>	<u>0.021 mg/L</u>	<u>0.71 mg/L</u>	<u>3.7 µg/L</u>
<u>13. Ponce de Leon</u>	<u>0.024 mg/L</u>	<u>0.52 mg/L</u>	<u>3.0 µg/L</u>
<u>14. Shark River Mouth</u>	<u>0.022 mg/L</u>	<u>0.75 mg/L</u>	<u>2.2 µg/L</u>
<u>15. Whitewater Bay</u>	<u>0.026 mg/L</u>	<u>0.82 mg/L</u>	<u>4.1 µg/L</u>
<u>(f) Florida Bay</u>	<u>Annual geometric means that shall not be exceeded more than once in a three year period</u>		
<u>1. Central Florida Bay</u>	<u>0.019 mg/L</u>	<u>0.99 mg/L</u>	<u>2.2 µg/L</u>
<u>2. Coastal Lakes</u>	<u>0.045 mg/L</u>	<u>1.29 mg/L</u>	<u>9.3 µg/L</u>
<u>3. East Central Florida Bay</u>	<u>0.007 mg/L</u>	<u>0.65 mg/L</u>	<u>0.4 µg/L</u>
<u>4. Northern Florida Bay</u>	<u>0.010 mg/L</u>	<u>0.68 mg/L</u>	<u>0.8 µg/L</u>
<u>5. Southern Florida Bay</u>	<u>0.009 mg/L</u>	<u>0.64 mg/L</u>	<u>0.8 µg/L</u>
<u>6. Western Florida Bay</u>	<u>0.015 mg/L</u>	<u>0.37 mg/L</u>	<u>1.4 µg/L</u>
<u>(g) Florida Keys</u>	<u>Annual geometric means that shall not be exceeded more than once in a three year period</u>		
<u>1. Back Bay</u>	<u>0.009 mg/L</u>	<u>0.25 mg/L</u>	<u>0.3 µg/L</u>
<u>2. Backshelf</u>	<u>0.011 mg/L</u>	<u>0.23 mg/L</u>	<u>0.7 µg/L</u>
<u>3. Lower Keys</u>	<u>0.008 mg/L</u>	<u>0.21 mg/L</u>	<u>0.3 µg/L</u>
<u>4. Marquesas</u>	<u>0.008 mg/L</u>	<u>0.21 mg/L</u>	<u>0.6 µg/L</u>
<u>5. Middle Keys</u>	<u>0.007 mg/L</u>	<u>0.22 mg/L</u>	<u>0.3 µg/L</u>

6. Oceanside	0.007 mg/L	0.17 mg/L	0.3 µg/L
7. Upper Keys	0.007 mg/L	0.18 mg/L	0.2 µg/L
(h) Biscayne Bay	Annual geometric means that shall not be exceeded more than once in a three year period		
1. Card Sound	0.008 mg/L	0.33 mg/L	0.5 µg/L
2. Manatee Bay – Barnes Sound	0.007 mg/L	0.58 mg/L	0.4 µg/L
3. North Central Inshore	0.007 mg/L	0.31 mg/L	0.5 µg/L
4. North Central Outer-Bay	0.008 mg/L	0.28 mg/L	0.7 µg/L
5. Northern North Bay	0.012 mg/L	0.30 mg/L	1.7 µg/L
6. South Central Inshore	0.007 mg/L	0.48 mg/L	0.4 µg/L
7. South Central Mid-Bay	0.007 mg/L	0.35 mg/L	0.2 µg/L
8. South Central Outer-Bay	0.006 mg/L	0.24 mg/L	0.2 µg/L
9. Southern North Bay	0.010 mg/L	0.29 mg/L	1.1 µg/L

(i) Sarasota Bay	<p>For TN, the annual geometric mean target is calculated from monthly arithmetic mean color by region and season. Annual geometric means that shall not be exceeded more than once in a three year period. The Sarasota Bay regions are defined as north (Manatee County) and south (Sarasota County). The wet season for Sarasota Bay is defined as July through October and the dry season is defined as all other months of the year. The seasonal region targets are calculated using monthly color data and shall be calculated as follows:</p> $NW_i = \text{Ln}[(13.35 - (0.32 * CN_i)) / 3.58]$ $ND_i = \text{Ln}[(10.39 - (0.32 * CN_i)) / 3.58]$ $SW_i = \text{Ln}[(8.51 - (0.32 * CS_i)) / 3.58]$ $SD_i = \text{Ln}[(5.55 - (0.32 * CS_i)) / 3.58]$ <p>Where,</p> <p>NW_i is the TN target for i^{th} month calculated for the north region during the wet season</p> <p>ND_i is the TN target for i^{th} month calculated for the north region during the dry season</p> <p>SW_i is the TN target for i^{th} month calculated for the south region during the wet season</p> <p>SD_i is the TN target for i^{th} month calculated for the south region during the dry season</p> <p>CN_i is the arithmetic mean color during the i^{th} month within the north region</p> <p>CS_i is the arithmetic mean color during the i^{th} month within the south region</p>
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	<u>The annual TN target is calculated as the geometric mean of all monthly regional and season targets as follows:</u> <u>Nutrient and nutrient response values do not apply to tidally influenced areas that fluctuate between predominantly marine and predominantly fresh waters during typical climatic and hydrologic conditions.</u>	
(j) Clam Bay (Collier County)	<u>No more than 10 percent of the individual Total Phosphorus (TP) or Total Nitrogen (TN) measurements shall exceed the respective TP Upper Limit or TN Upper Limit.</u>	
	<u>TP Upper Limit (mg/L) = $e^{(-1.06256 - 0.0000328465 * \text{Conductivity } (\mu\text{S}))}$</u>	<u>TN Upper Limit (mg/L) = $2.3601 - 0.0000268325 * \text{Conductivity } (\mu\text{S})$</u>

Subsection 62-302.532(1) and the associated table establish estuary-specific numeric interpretations of the State's existing narrative nutrient criterion for nine estuarine or coastal areas referenced by name in 62-302.532(1) (a) through (j). Eight of these nine named estuarine or coastal areas are further segmented spatially as functional entities with criteria values derived for each. Criteria for each segment of each estuary are provided for the parameters of TP, TN, and chlorophyll *a*, and, except for Tampa Bay, Sarasota Bay, and Clam Bay (which are described further below), are expressed as open-water, area-wide annual geometric (in some cases, arithmetic) mean concentrations not to be exceeded more than once in a three year period. For each segment of Tampa Bay the criteria are expressed as annual total loads (tons, aggregated from all sources) of TP and TN per million cubic meters of water delivered to the segment⁴⁴ and annual arithmetic means of chlorophyll *a* not to be exceeded more than once in a three year period. For Sarasota Bay proper, the TN criterion is stated as a formula relationship that reflects variation in color, according to season and a north/south delineation, resulting in a TN concentration value. For Clam Bay, the TN and TP criteria are defined as formulas which adjust for conductivity, to calculate limits above which no more than 10 percent of individual TP or TN concentration measurements can exceed.

As indicated in the estuary criteria table, all of the criteria (with the exception of the criteria for Clam Bay) are associated with an exceedance frequency of not more than once in a three year period. Page 25 of FDEP's Marine Overview TSD provides, "[a]n acceptable excursion frequency can be set using a 3-year period as the basis of assessment. The excursion frequency should account for inter-annual nutrient patterns and be established at a frequency that allows for effective and timely nutrient control; that is, it should account for and allow natural inter-annual variability associated with climatic cycles, and recognize that multiple high nutrient years can occur in succession. A consideration of this inter-annual correlation would suggest that the excursion frequency should allow for multiple excursions in a three-year period, such as two out of five or three out of five years. However, regulatory agencies often target

⁴⁴ The phrases "total load of that nutrient to the estuary", "annual totals for nutrients", and "tons/million cubic meters of water" within the rule text refer to a concept represented by the term, nutrient delivery ratio (NDR), as discussed in the technical support documentation for Tampa Bay. An NDR is a segment aggregate term, found by taking the total *aggregate* load of the nutrient to an estuary segment from all sources and dividing it by the total *aggregate* volume of freshwater inflow to that segment.

a more rapid assessment period to allow for the implementation of corrective action in a timely manner, making less frequent excursions more desirable for expressing the criteria (e.g., only once in a 3-year period)." In further discussion on page 26 of the Marine Overview TSD, FDEP also provides, "[f]rom a management perspective, allowing less frequent excursions (e.g., once in a 3-year period) would provide a more effective nutrient control strategy than waiting for a full 3 years to take corrective actions. Furthermore, not allowing for any exceedances (i.e., 0 in 3 years) is not realistic, since this would not allow for the full range of natural variability and would result in an excessive number of false positive exceedances. Therefore, the Department is proposing to derive protective nutrient thresholds based on a no more than 1-in-3 year excursion frequency." While some of the estuary system reports in the TSD include justification and recommendation of a 2-in-5 year exceedance frequency, the State's rule consistently specifies a 1-in-3 year exceedance frequency for all systems (with the exception of Clam Bay). Since a 1-in-3 year exceedance frequency allows less exceedance over a shorter interval of consideration than that of a 2-in-5, it is considered more protective and sufficiently supported by FDEP's justification of its use in other waterbodies covered by this rule. Consistent with the specific language of the Rule and further assured by language in the Implementation Document, it is the EPA's expectation that the FDEP will assess the West Coast estuaries and South Florida marine waters using the 1-in-3 year exceedance frequency.

In discussion on page 9 of FDEP's Marine Overview TSD the State quotes 62-302.530(47)(b) of its nutrient narrative to be translated by the approaches outlined in the document. The State goes on to identify "a healthy well-balanced community" as a key concept for that translation and describes how it is defined. The State says it has developed these criteria to protect healthy, well-balanced natural populations of aquatic flora and fauna from the effects of excess anthropogenic nutrient enrichment. The State defines a healthy community as one that maintains a characteristic community structure and function (specific to the resource), while allowing for modest changes in biological community structure compared with background. The State contends that a healthy, well-balanced community is therefore not restricted to one described as "pristine" or "100% natural." The State accepts anthropogenically induced ecosystem change as acceptable as long as the following conditions are present:

- there continue to be reproducing populations of sensitive taxa,
- an overall balanced distribution of all expected major groups is maintained, and
- ecosystem functions are largely intact due to redundant system attributes (Davies and Jackson 2006).

According to page 13 of the Marine Overview TSD the State utilized four different approaches to develop criteria protective of healthy, well-balanced natural populations of aquatic flora and fauna in estuary and marine waters. Those four approaches were identified and described in this document by the State as:

- maintain healthy conditions approach
- historical conditions approach
- response-based approach using modeling or empirical evidence, and
- reference site approach

Through additional dialogue with the State, the EPA understands that these approaches, although discussed as discrete analytical methods for criteria derivation, are actually used to provide broad qualitative descriptions of the water quality characteristics found among Florida estuarine systems. Analytically, each approach mentioned above applies a similar, if not identical method to derive numeric

nutrient criteria that support the water quality characteristics noted for each system. The EPA considers all of FDEP's listed approaches to be applications of a reference condition approach, whether the reference is a current condition, an historical condition, or a desired condition. Then data representing that reference condition is subjected to distributional statistics or regression analysis to arrive at nutrient levels that will maintain that condition on average over time.

The following text describes the respective estuary-specific derivation processes for each of the nine estuary areas. In each case, estuary-specific numeric interpretations of the narrative criterion were developed for TN, TP, and chlorophyll *a* as listed in the table with components of magnitude, frequency, and duration. The criteria in the table are specifically expressed as annual geometric means (or in a few cases, annual arithmetic means) not to be exceeded more than once in a three year period.

Based upon the Rule text, the EPA would expect implementation of the criteria for all included estuarine and marine waters to involve independent evaluation of each criteria according to the process described on pages 21 and 41-42 of FDEP's Nutrient Standards Implementation Document. However, for Tampa Bay, page 41 of FDEP's Nutrient Standards Implementation Document states "For the Tampa Bay estuarine system, where nutrient standards are expressed as a delivery ratio, the Tampa Bay Estuary Program (TBEP) has agreed, pursuant to their binding Reasonable Assurance agreement, to provide the hydrologic and loading information (for both point and nonpoint sources) needed to calculate and assess annual delivery ratios on at least a five year frequency, which is consistent with DEPs watershed assessment cycle. However, TBEP has agreed to evaluate chlorophyll *a* targets on an annual basis, and will provide the Department with the needed information more frequently if chlorophyll *a* targets are exceeded for two consecutive years." While this statement describes something different than the specific language of the rule, the EPA expects that, consistent with the adopted rule language and CWA requirements, FDEP will evaluate the suite of parameters independently with a "not to be exceeded more than once every three years" frequency.

South West Coast Estuaries

Four of the nine named estuary areas are located along the west coast of Florida and are either included within the boundaries of, or immediately adjacent to three National Estuary Programs (NEP).⁴⁵ The four areas referred to by name are Clearwater Harbor/St. Joseph Sound, Tampa Bay, Sarasota Bay, and Charlotte Harbor/Estero Bay. Criteria for these estuaries were developed and proposed to FDEP by the respective NEP or county and are described in separate technical reports prepared by Janicki Environmental, Inc. on behalf of the NEP or county and submitted to the EPA by the State. These documents, "Proposed Numeric Nutrient Criteria for Clearwater Harbor and St. Joseph Sound, Sept 2011" (TSD for CH/SJS), "Proposed Numeric Nutrient Criteria for Tampa Bay, Sept 2011" (TSD for TB), "Proposed Numeric Nutrient Criteria for Boca Ciega Bay, Terra Ceia Bay, and Manatee River, Florida, Sept 2011" (TSD for BCB/TCB/MR), "Proposed Numeric Nutrient Criteria for Sarasota Bay, Sept 2011" (TSD for SB), and "Proposed Numeric Nutrient Criteria for the Charlotte Harbor National Estuary Program Estuarine System, Sept 2011" (TSD for CH/EB), include a description of approaches applied, a summary of analytical techniques used, and recommended criteria for each system. The State accepts the conclusions presented in each of these reports with some modification (in magnitude,

⁴⁵ West Coast NEPs include: Tampa Bay National Estuary Program (TBNEP), Sarasota Bay National Estuary Program (SBNEP), and Charlotte Harbor National Estuary Program (CHNEP).

frequency, and duration) to ensure nutrient levels that will be fully protective of healthy, well-balanced biological communities in these estuaries and has established the associated criteria in this rule based upon that acceptance.

The supporting documentation provided by the State to the EPA was organized geographically and is reflected in the following discussion. In a general sense, these estuaries have certain similarities, such that, the estuary specific approaches all share a common conceptual model. A condition of balanced populations of flora and fauna is presumed to be represented by healthy seagrass, i.e., seagrass which is stable or increasing in acreage over a period of record. The conceptual model is described as a pathway that relates seagrass health through a series of steps back to the input of nutrients TN and TP. The steps in the pathway consist of: (1) seagrass growth and reproduction, as controlled by (2) seagrass light requirements, which are in turn affected by (3) light attenuation in the water column, that results in part, from (4) chlorophyll *a*, and chlorophyll *a* levels are influenced by (5) TN and TP loads.

For Clearwater Harbor/St. Joseph Sound, Tampa Bay, Sarasota Bay, and Charlotte Harbor/Estero Bay, a reference period approach was used to derive management targets and thresholds, defined by a period of time when seagrass acreage was stable or increasing, which the State assumed to be indicative of designated use support. Seagrass thresholds were determined by comparing historical years of seagrass acreage (dependent on the system) to more current years of acreage, overlapping them to define segments of the systems in which seagrass could be categorized into “protection” or “restoration” management goals. The seagrass targets, with derivation varying somewhat by system, were used to inform the chlorophyll *a* thresholds. The chlorophyll *a* targets were calculated as annual means established over the reference period in each system. A combination of reference period and stressor-response analysis were used to derive TN and TP thresholds.

Because different amounts of data were available for each system, the variability in the data set was unique to each analysis. Given this information, the NEP stakeholders in each system, reflecting locally specific considerations, identified the appropriate standard deviation or standard error to apply to the criteria in order to establish the threshold values. Chlorophyll *a* and seagrass depth (light attenuation) targets, as well as TN and TP targets for each of the system segments were developed using data from the reference period described in the preceding paragraph. The standard deviations were calculated using a data set spanning a longer time period to capture long term variation in each individual system. The final proposed numeric nutrient criteria (chlorophyll *a*, TN, and TP thresholds) relied on either annual arithmetic or geometric mean nutrient concentration targets plus a specific multiple of the standard deviation (Clearwater Harbor/St. Joseph Sound, Charlotte Harbor, Sarasota Bay) or standard error for the period of record, which accounted for variation around the derived targets on a yearly basis. The addition of the standard deviation or standard error value over the period of record to arrive at a threshold was performed to account for variability, while minimizing Type I and II errors in assessment (FDEP, Marine Overview TSD, Sections 2.3-2.5). The chlorophyll *a* target concentrations were derived directly from the light attenuation targets supportive of the chosen seagrass endpoint. This distinction excludes Tampa Bay, where the Delivery Ratios apply.

(a). Clearwater Harbor/St. Joseph Sound (CHSJS) (further subdivided in the rule into sub-segments (a) 1. through (a) 3.)

For the Clearwater Harbor/St. Joseph Sound estuary area, FDEP promulgated segment specific TN, TP, and chlorophyll *a* concentration thresholds based on a reference period (2003-2009) for three segments-

St. Joseph Sound, Clearwater Harbor North, and Clearwater Harbor South. Because seagrasses are currently considered to be improving throughout the CHSJS since 1999, FDEP concluded that recent TN concentrations are sufficient to maintain designated uses in the estuary. (FDEP, TSD for CH/SJS, p. 17-19). Therefore, a reference period approach using data from 2003-2009 was used to establish management targets and thresholds for TN. FDEP utilized the TP criteria expressed as concentrations that were also presented in the TSD appendix, and considered them appropriate for promulgation in addition to TN and chlorophyll *a* criteria that were developed by the NEP.

To establish that a reference condition approach was appropriate, past and present biological and water quality data were examined. In particular, seagrass extent was evaluated using aerial photo interpretation of historical acreage and recent seagrass coverage surveys for Clearwater Harbor. Because conditions in recent years were determined to be supportive of healthy conditions and presumed to provide designated use support, a reference period from 2003-2009 was used (FDEP, TSD for CH/SJS). The NEPs used a reference period of time in which they determined seagrass was stable or increasing. The NEPs assume seagrass to be reflective of aquatic life use support and that assumption was extended to all aquatic life throughout the water body and accepted by FDEP. It should be noted that although seagrass trends were used to justify the use of a reference period approach, they were not used to establish the chlorophyll *a* targets as seen in other NEP systems. TN and chlorophyll *a* concentration targets were based on an annual geometric mean of data over the reference period, derived from water quality sampling data collected using Pinellas County's probabilistic water quality sampling design (FDEP, TSD for CH/SJS, p. 14, 18, 20). For TN and chlorophyll *a* concentration targets, data was first log transformed, and then each year was averaged. All means for each individual year during the reference period were then averaged to arrive at the geometric mean over the entire reference period. Threshold concentrations values were calculated based on a statistical analysis that showed that if concentrations in any year were not different from reference period conditions, the geometric mean value would be lower than the reference period mean plus 1.96 times the standard deviation of the annual geometric averages (FDEP, TSD for CH/SJS, p. 20).

FDEP has provided support of this rule demonstrating that the numeric nutrient criteria adopted by the State are based on a scientific rationale and will serve to protect the uses designated by the State for the estuarine and marine waters covered by this rule. FDEP concluded that this approach will provide sufficient protection of designated uses for these waters. The EPA concludes that the criteria provided at Subsection 62-302.532(1) (a). Clearwater Harbor/St. Joseph Sound and sub-segments are based on a scientific rationale and protect the uses designated by the State in this estuarine area and therefore, are consistent with the CWA, 40 CFR Part 131, and the EPA's 304(a) guidance on nutrient criteria.

(b). Tampa Bay (further subdivided in the rule into sub-segments (b) 1. through (b) 8., including Boca Ciega, Terra Ceia, and Manatee River)

For the Tampa Bay estuary area, FDEP promulgated segment-specific nutrient load thresholds calculated with the "Nitrogen Delivery Ratio" during a 1992-1994 reference period for both Tampa Bay proper and the additional sub-segments. The four main segments of Tampa Bay are Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay, and Lower Tampa Bay. Criteria were also derived and proposed separately for four additional segments denoted as Manatee River, Terra Ceia, Boca Ciega north, and Boca Ciega south. All segmentation was based on a pre-existing TMDL implementation plan, informed by analysis of water quality parameters under the Tampa Bay Nitrogen Management Consortium annual review of water quality data and biannual review of bay-wide seagrass extent (FDEP, TSD for TB,

Appendix A). This same bay segmentation scheme for Tampa Bay was used for the federally approved TMDL for TN and the associated implementation plan (FDEP Q & A Document, p.9). For all segments, seagrass targets were developed using aerial photo interpretation of historical acreage and recent seagrass coverage maps. Areas supporting seagrass in the 1990s (later years) were defined as protection areas; restoration areas were those with seagrass in 1950 but not in the 1990s (found by overlaying coverage maps) (FDEP, TSD for TB, p. 9). The seagrass target for the bay was set based on 95% of the resulting seagrass acreage resulting from summing the restoration and protection areas.

Chlorophyll *a* thresholds and seagrass depth (light attenuation) targets were established using data from the reference period (1992-1994; 2003-2007 for the Manatee River) (FDEP, TSD for TB, p. 10-11; FDEP TSD for BCB/TCB/MR, p.13). The chlorophyll *a* targets were set as the lower value of either the annual average derived from empirical model predictions, or the annual average of the 1992-1994 data. Chlorophyll *a* thresholds were established as the target plus two standard errors around the mean annual chlorophyll *a* concentrations for the period of record of available data in each segment. The period of record was used to capture the greatest amount of variability. The shorter period of reference was selected because it was representative of when seagrass was stable or increasing in acreage, which the State assumes to be indicative of designated use support.

For the four main segments, 1992-1994 annual average TN loads were initially established using a reference period approach, and the concurrent observations of TN load levels and seagrass levels determined to be acceptable by the consensus TMDL process (FDEP TSD for TB, p. 11; FDEP TSD for BCB/TCB/MR, p. 14).

Through years of data collection and analysis, TBNEP concluded residence time of water has a significant effect on water quality. As residence time shortens when freshwater inputs are greater, loadings move through the system more quickly and thus biological processes have less time to convert nutrients into chlorophyll *a*. Therefore, both TN levels and hydraulic loading should be accounted for when establishing criteria in all Tampa Bay segments (FDEP TSD for BCB/TCB/MR, p.16-17; FDEP TSD for TB, p.1316 and Appendix C). A Nitrogen Delivery Ratio, defined as the amount of TN delivered, in tons, per million cubic meters of freshwater delivered, was used to calculate load thresholds for each segment, measured as the mass (load) of TN delivered to that segment from all sources per volume of water, based on 1992-1994 reference conditions. The Delivery Ratio is a weighted average based on seven main identified sources of wet and dry loads to Tampa Bay, and is not directly comparable to concentration criteria values. TN criteria for the Tampa Bay group of estuaries are expressed as segment-specific Nitrogen Delivery Ratios that were observed during the 1992-1994 reference period. TP criteria are also expressed as segment specific Phosphorus Delivery Ratios that were developed by the NEP in addition to TN and chlorophyll *a* criteria.

An assessment process for Tampa Bay, described in the TSD and confirmed on page 42 of the Implementation Document, allows for annual comparison to the chlorophyll *a* threshold, and if this threshold is exceeded more than two consecutive years, then the Nitrogen Delivery Ratio will be assessed during that period for the given segment.

FDEP has provided support of this rule demonstrating that the numeric nutrient criteria adopted by the State are based on a scientific rationale and will serve to protect the uses designated by the State for the estuarine and marine waters covered by this rule. The FDEP has relied upon the previously established and successful ongoing restoration efforts in these waters. These efforts have resulted in collective

reduction of nutrients to the overall system and associated water quality improvements as indicated by progress on seagrass recovery goals. FDEP concluded that this approach will provide sufficient protection of designated uses for these waters. The EPA concludes that the criteria provided at Subsection 62-302.532(1) (b). Tampa Bay and sub-segments are based on a scientific rationale and are protective of the uses designated by the State in this estuarine area, and therefore, are consistent with the CWA, 40 CFR Part 131, and the EPA's 304(a) guidance on nutrient criteria.

(c). Sarasota Bay (further subdivided in the rule into sub-segments (c) 1. through (c) 5.)⁴⁶

For the Sarasota Bay estuary area, FDEP promulgated segment-specific TN, TP, and chlorophyll *a* concentrations (expressed as mean annual TN, TP, and chlorophyll *a* concentrations). Using data from within the 1998-2008 time period, a combination of reference condition and stressor-response analyses was used to derive TN, TP, and chlorophyll *a* criteria. (FDEP TSD for SB)

Seagrass targets were developed using aerial photo interpretation of historical acreage and recent seagrass coverage maps. Areas supporting seagrass in recent coverage years were defined as "protection areas," while "restoration" areas were identified as those areas having historical seagrass coverage, but lacking coverage in recent maps (found by overlaying coverage maps). The seagrass targets were established as the greater of either the historic or recent (2004-2006) seagrass coverage in each segment, excluding Little Sarasota Bay (FDEP TSD for SB).

The chlorophyll *a* criteria were established as the target (mean concentration from 2001-2005) plus one standard deviation of the mean annual chlorophyll *a* concentrations for the entire period of record, which varied in each segment. Similarly, the TP criteria were established based on calculating the sum of the annual mean of the reference period (2001-2005) and mean annual standard deviation in each segment for the segment-specific period of record (FDEP TSD for SB).⁴⁷ The shorter period of reference was selected because it was representative of when seagrass was stable or increasing in acreage, which the State assumes to be indicative of designated use support.

A regression approach was used to derive TN criteria for all segments in Sarasota Bay except Palma Sola where a reference period approach was applied. (FDEP TSD for SB). Data within the 1998-2009

⁴⁶ The named estuary area, Sarasota Bay, includes Sarasota Bay as a subsegment and four other subsegments. Furthermore, the Sarasota Bay subsegment includes two further segmented geographic regions, the North and South regions. This geographic distinction only applies in the case of the TN criteria. The Sarasota Bay subsegment at (c)2. of the table, references (i) of the table, which further delineates the North and South regions of Sarasota Bay proper. Within (i), the TN criteria are provided as a formula.

⁴⁷ From "Proposed NNC for Tampa Bay," p. 10-11; "Proposed NNC for Sarasota Bay," p. 9-10; "Proposed NNC for Charlotte Harbor," p. 8-9; Specific chlorophyll *a* targets were determined as the average annual levels during the reference period for the estuary developed from empirical model predictions, or the 1992-1994 average annual levels, whichever was lower. Chlorophyll *a* targets were then adjusted upward to allow for some degree of interannual variation that was not expected to cause significant reductions in seagrass, and that level was identified as the chlorophyll *a* threshold. Similarly, TN and TP thresholds for Charlotte Harbor were established by adding some degree of interannual variation to the target value. The actual amount of adjustment varied estuary by estuary, as some fraction or multiple of the associated standard deviation or standard error for the period of record for each estuary. A basis for the difference in practice may be attributable to varying confidence in the quantity or quality of the available data.

time period were used in the regression analyses. A standard deviation of the annual means for the segment-specific period of record was applied. (FDEP TSD for SB) For the Sarasota Bay subsegment (c)2., TN criteria are provided as a formula further down the table at (i) to be used to determine annual geometric means calculated from monthly arithmetic mean color for each North and South region with consideration of wet versus dry seasonality. Through years of data collection and analysis, local experts have noted a unique response to tannins during wet and dry seasons in Sarasota Bay proper that does not appear in other segments of the estuary system. Local experts attribute this phenomenon to additional leaf litter from mangroves and other vegetation found in higher quantities in this segment of the estuary. For more details see the FDEP TSD for SB.

FDEP has provided support of this rule demonstrating that the numeric nutrient criteria adopted by the State are based on a scientific rationale and will serve to protect the uses designated by the State for the estuarine and marine waters covered by this rule. The FDEP has relied upon the previously established and successful ongoing restoration efforts in these waters. These efforts have resulted in collective reduction of nutrients to the overall system and associated water quality improvements as indicated by progress on seagrass recovery goals. FDEP concluded that this approach will provide sufficient protection of designated uses for these waters. EPA concludes that the criteria provided at Subsection 62-302.532(1) (c). Sarasota Bay and sub-segments, as well as Subsection 62-302.532(1) (i) are based on a scientific rationale and are protective of uses designated by the State in this estuarine area, and , therefore, are consistent with the CWA, 40 CFR Part 131, and EPA's 304(a) guidance on nutrient criteria.

(d). Charlotte Harbor/Estero Bay (further subdivided in the rule into sub-segments (d)1. through (d)9.)⁴⁸

For the Charlotte Harbor estuary area, FDEP promulgated segment-specific mean annual TN, TP, and chlorophyll *a* criteria, using a reference period approach (2003-2007) with data collected during a period of time when seagrass acreage was stable or increasing, which the State assumes to be indicative of designated use support. Under this approach, a segment classified as a seagrass "protection" segment received a TN concentration criterion calculated by summing the annual mean from the reference period (2003-2007) and one standard deviation (for the period of record). However, if a segment was classified as a seagrass "restoration" segment the TN concentration criterion was calculated by summing the annual mean from the reference period (2003-2007) and one-half standard deviation (for the period of record) (FDEP TSD for CH/EB, p. 9). The addition of the standard deviation value over the period of record to arrive at a threshold was performed to account for variability, while minimizing Type I and II errors in assessment (FDEP TSD for CH/EB, p. 50).

To determine segmentation, water quality data was normalized and used to examine the heterogeneity in water quality among segments within the study area. Four segmentation schemes were compared using Principal Components Analysis and Spearmans rank for color, salinity, TP, TN, chlorophyll *a*, dissolved oxygen, total organic carbon, total suspended solids, and turbidity (Janicki Environmental, Inc., July 2009, p. 15). All segments proposed were based on Coastal Charlotte Harbor Monitoring Network,

⁴⁸ The criteria contained in the table located at 62-302.532(1)(d) do not specifically address the Tidal Caloosahatchee River or the Tidal Peace River. The Tidal Caloosahatchee River is included in the list of TMDLs under review by EPA and the Tidal Peace River which may be addressed site specifically as Hierarchy 1 interpretation at a future date.

except for Pine Island Sound, Estero Bay, and Lemon Bay which were ultimately divided, for a total of 9 segments.

Seagrass targets were developed using aerial photo interpretation of historical acreage and recent seagrass coverage maps. This information was used to identify both "protection" (areas supporting seagrass in 1990) and "restoration" (those with seagrass in 1950 but not in 1990) areas in the harbor ("Water Quality Target Refinement Project, Seagrass Target Development Interim Report 2, 2009, p.8, 26). The CHNEP seagrass target for each segment was determined to be the greater of either the adjusted baseline acreage or the mean of all recent seagrass surveys (FDEP TSD for CH/EB). Chlorophyll a thresholds and seagrass depth (light attenuation) targets were also established using data from the reference period (2003-2007). The annual arithmetic mean TN/TP concentration of the monthly mean values were calculated for each year from 2003-2007 and the average of these annual means was designated as the TN and TP concentration targets for this segment (FDEP TSD for CH/EB, p. 50). The segment-specific annual mean TN and TP criteria were then calculated by summing the annual average during the reference period (2003-2007) and the associated standard deviation value for the period of record according to the segments classification

FDEP has provided support of this rule demonstrating that the numeric nutrient criteria adopted by the State are based on a scientific rationale and will serve to protect the uses designated by the State for the estuarine and marine waters covered by this rule. The FDEP has relied upon the previously established and successful ongoing restoration efforts in these waters. These efforts have resulted in collective reduction of nutrients to the overall system and associated water quality improvements as indicated by progress on seagrass recovery goals. FDEP concluded that this approach will provide sufficient protection of designated uses for these waters. The EPA concludes that the criteria provided at Subsection 62-302.532(1) (d). Charlotte Harbor/Estero Bay and sub-segments are based on a scientific rationale and are protective of the uses designated by the State for this estuarine area, and therefore, are consistent with the CWA, 40 CFR Part 131, and the EPA's 304(a) guidance on nutrient criteria.

Additional South Florida Marine Systems

The State developed criteria for the marine waters of southernmost Florida by grouping those waters geographically into four large south Florida systems identified as the Tidal Cocohatchee River/Ten Thousand Islands, Florida Bay, the Florida Keys, and Biscayne Bay. FDEP developed criteria for these waters using the "Maintain Healthy Conditions Approach" that is described in Section 2 of the Marine Waters Overview with further specific supporting documentation provided in separate reports for each of the four systems. The EPA's analysis of that material is reflected in the following discussion.

Based upon data, information, and analyses obtained from local experts (e.g., FIU scientists, the National Park Service, etc.) in a series of workshops convened by the State, criteria were developed for the estuarine and coastal marine waters of south Florida. FDEP established a regionalization scheme based on the unique water quality and geologic characteristics of each system. Important biological communities, water quality conditions, and nutrient sources were evaluated in each system to establish the status of the system and conclude a condition of designated use support. The existence in certain instances of §303(d) listings for nutrient impairment for some of the waters, or some periods of time in these waters, or for some contributing tributaries to these waters was not considered by the State to be a significant issue to the overall assumption of use support. EPA concluded that the inclusion of data for the §303(d) listed waters did not significantly affect the data distribution for the south Florida marine

waters. After summarizing the health of the system FDEP segmented each system based on a principal components analysis and hierarchical cluster analysis. Criteria for each system were then calculated using the upper 80 percent prediction limit of the spatially averaged annual geometric means, with a frequency and duration of no more than 1 annual geometric mean exceeding the limit in a 3-year period.

FDEP has provided information on the declining levels of nutrients and chlorophyll *a*, as well as the excellent transparency, in the Florida and Biscayne Bays. [Madden, T. 1231] FDEP also determined that the weight of the evidence demonstrates that the Florida Keys had a healthy, well-balanced population of flora and fauna during the baseline period described below. FDEP found the Keys exhibited low nutrient levels, very low chlorophyll *a* concentrations, and seagrass beds that are among the most extensive in the world. [Ex. 424, p. 13, 29 and 37] For the Southwest estuaries, FDEP determined that the weight of the evidence demonstrates that these estuaries had a healthy, well-balanced population of flora and fauna during the baseline period described below. This finding is supported by very low nutrient levels, very low chlorophyll *a* concentrations, no increasing trends in nutrients or chlorophyll *a* and a large percentage (>80 %) of conservation land in the basin, including the largest undisturbed mangrove forests in the state. [Joyner, T. 1057, 1058, 1069; Ex 404A, pp. 10-17]

(e). Tidal Cocohatchee River/Ten Thousand Islands (further subdivided in the rule into sub-segments (e) 1. through (e) 15.)

These Southwest Coastal Estuaries are geographically located between Naples Bay and Whitewater Bay, but also include the Cocohatchee River.⁴⁹ Criteria for the Tidal Cocohatchee River/Ten Thousand Islands are presented in the table in subsection 62-302.532 (1)(e). The general “Maintain Healthy Conditions Approach” as referenced above for south Florida systems was used to develop criteria in the Southwest Coastal Estuaries. In south Florida marine waters, an approach based on literature and input from local experts using least-disturbed reference conditions is reasonable to determine TN, TP, and chlorophyll *a* concentrations when these waters were supporting designated uses. Therefore, relying upon the reference condition approach to identify numeric nutrient criteria concentrations that protect the designated uses, and avoid any adverse change in natural populations of aquatic flora or fauna is an acceptable approach. Based on a segmentation approach developed by local experts from Florida International University (FIU) and National Park Service (NPS), FDEP proposed 15 segments for criteria derivation. The data period used for segmentation and criteria development ranged from September 1992-September 2009 for Whitewater Bay and Ten Thousand Islands, from January 1999-September 2009 for Pine Island to Rookery Bay, and from May 1995-September 2007 for the Shelf (FDEP, Site-Specific Information in Support of Establishing Numeric Nutrient Criteria for the Southwest Coastal Estuaries, Including Naples Bay, Rookery Bay, and the Ten Thousand Islands, Oct. 2011). Criteria for each system were then calculated using the long-term dataset for each waterbody using the approach described above for South Florida marine systems.

FDEP has provided information on the declining levels of nutrients and chlorophyll *a*, as well as the excellent transparency, in the Florida and Biscayne Bays. [Madden, T. 1231] FDEP also determined that the weight of the evidence demonstrates that the Florida Keys had a healthy, well-balanced population of flora and fauna during the baseline period described below. FDEP found the Keys exhibited low

⁴⁹ These estuaries are shown in the maps labeled "Marine Nutrient Regions - October 19, 2011 - Southwest Florida/10,000 Islands" (files: nnc_10000islands_1_estuarymap_ltr.pdf and nnc_10000islands_2_estuarymap_ltr.pdf).

nutrient levels, very low chlorophyll *a* concentrations, and seagrass beds that are among the most extensive in the world. [Ex. 424, p. 13, 29 and 37] For the Southwest estuaries, FDEP determined that the weight of the evidence demonstrates that these estuaries had a healthy, well-balanced population of flora and fauna during the baseline period described below. This finding is supported by very low nutrient levels, very low chlorophyll *a* concentrations, no increasing trends in nutrients or chlorophyll *a* and a large percentage (>80 %) of conservation land in the basin, including the largest undisturbed mangrove forests in the state. [Joyner, T. 1057, 1058, 1069; Ex 404A, pp. 10-17]

As discussed in the streams section of the document, above, the reference condition approach, a long-standing peer-reviewed methodology published by EPA, was designed to develop protective numeric nutrient criteria where reference conditions can be confidently defined. The reference condition approach, which has been well documented, peer reviewed, and developed in a number of different contexts, is used to derive numeric nutrient criteria that are protective of applicable designated uses by identifying numeric nutrient criteria concentrations occurring in least-disturbed, healthy coastal and south Florida marine waters that are supporting designated uses.

The EPA concludes that the criteria provided at Subsection 62-302.532(1) (e). Tidal Cocohatchee River/Ten Thousand Islands and sub-segments are based on scientific rationale and are protective of the uses designated by the State in these marine waters, and therefore, are consistent with the CWA, 40 CFR Part 131, and the EPA's 304(a) guidance on nutrient criteria.

(f). Florida Bay (further subdivided in the rule into sub-segments (f) 1. through (f) 6.)

Criteria for Florida Bay are presented in the table in subsection 62-302.532 (1)(f). The general "Maintain Healthy Conditions Approach" as referenced above for south Florida systems was used to develop criteria in Florida Bay. In south Florida marine waters, an approach based on literature and input from local experts using least-disturbed reference conditions is reasonable to determine TN, TP, and chlorophyll *a* concentrations when these waters were supporting designated uses. Therefore, relying upon the reference condition approach to identify numeric nutrient criteria concentrations that protect the designated uses, and avoid any adverse change in natural populations of aquatic flora or fauna is an acceptable approach. Based on a segmentation approach developed by local experts from Florida International University (FIU) and National Park Service (NPS), FDEP proposed six segments for criteria derivation. Segmentation of Florida Bay was performed using data collected as part of FIU's Coastal Water Quality Monitoring Network from March 1991-December 2007. Criteria were calculated using "water quality monitoring data collected from 1995 to 2009 by Florida International University's (FIU) Southeast Environmental Research Center (SERC)." (FDEP, Site-Specific Information in Support of Establishing Numeric Nutrient Criteria for Florida Bay, Oct. 2011).

FDEP has provided information on the declining levels of nutrients and chlorophyll *a*, as well as the excellent transparency, in the Florida and Biscayne Bays. [Madden, T. 1231] FDEP also determined that the weight of the evidence demonstrates that the Florida Keys had a healthy, well-balanced population of flora and fauna during the baseline period described below. FDEP found the Keys exhibited low nutrient levels, very low chlorophyll *a* concentrations, and seagrass beds that are among the most extensive in the world. [Ex. 424, p. 13, 29 and 37] For the Southwest estuaries, FDEP determined that the weight of the evidence demonstrates that these estuaries had a healthy, well-balanced population of flora and fauna during the baseline period described below. This finding is supported by very low nutrient levels, very low chlorophyll *a* concentrations, no increasing trends in nutrients or chlorophyll *a* and a

large percentage (>80 %) of conservation land in the basin, including the largest undisturbed mangrove forests in the state. [Joyner, T. 1057, 1058, 1069; Ex 404A, pp. 10-17]

As discussed in the streams section of the document, above, the reference condition approach, a long-standing peer-reviewed methodology published by EPA, was designed to develop protective numeric nutrient criteria where reference conditions can be confidently defined. The reference condition approach, which has been well documented, peer reviewed, and developed in a number of different contexts, is used to derive numeric nutrient criteria that are protective of applicable designated uses by identifying numeric nutrient criteria concentrations occurring in least-disturbed, healthy coastal and south Florida marine waters that are supporting designated uses.

The EPA concludes that the criteria provided at Subsection 62-302.532(1) (f). Florida Bay and sub-segments are based on scientific rationale and are protective of the uses designated by the State in these marine waters, and therefore, are consistent with the CWA, 40 CFR Part 131, and the EPA's 304(a) guidance on nutrient criteria.

(g) The Florida Keys (further subdivided in the rule into sub-segments (g) 1. through (g) 7.)

Criteria for the Florida Keys are presented in the table in subsection 62-302.532 (1)(g). The general "Maintain Healthy Conditions Approach" as referenced above for south Florida systems was used to develop criteria in the Florida Keys. In south Florida marine waters, an approach based on literature and input from local experts using least-disturbed reference conditions is reasonable to determine TN, TP, and chlorophyll *a* concentrations when these waters were supporting designated uses. Therefore, relying upon the reference condition approach to identify numeric nutrient criteria concentrations that protect the designated uses, and avoid any adverse change in natural populations of aquatic flora or fauna is an acceptable approach. Based on a segmentation approach developed by local experts from Florida International University (FIU) and National Park Service (NPS), FDEP proposed seven segments for criteria derivation. Segmentation of Florida Bay was performed using data collected as part of FIU's Coastal Water Quality Monitoring Network from March 1995-October 2009. Criteria for each system was then calculated using the long-term dataset for each waterbody.

The TSD for the Florida Keys, entitled "Site-Specific Information in Support of Establishing Numeric Nutrient Criteria for the Florida Keys," (October 2011) defines a halo zone around the land masses of the Florida Keys which extends from the shoreline to 500 meters offshore. In the TSD, FDEP indicates an intention to establish criteria for waters within the halo zone using concentrations developed in the *Florida Keys Reasonable Assurance Document* (FKRAD) (FDEP 2008). The process for development of criteria described in the TSD is focused on the open waters between the seaward edge of the halo zone and the outer boundary of the state jurisdictional limits and was developed using the "Maintain Healthy Conditions Approach" described above for all south Florida systems. The EPA's review of the submitted information, in the TSD, leads the EPA to conclude that as stated, the criteria in subsection 62-subsection 302.532(1)(g) apply from the shoreline to the state jurisdictional limit. Verbal discussions with FDEP and statements on page 25 of their Question and Answer document have confirmed that they intend to submit the FKRAD as a Hierarchy 1 Site Specific Alternative Criteria at a later date for review as a Hierarchy 1 SSAC. Until such action is approved by the EPA, criteria for the segments in the table at subsection 62-302.532(1)(g), apply to all the applicable waters surrounding the Florida Keys, as shown in maps referenced at subsection 62-302.532(2).

FDEP has provided information on the declining levels of nutrients and chlorophyll *a*, as well as the excellent transparency, in the Florida and Biscayne Bays. [Madden, T. 1231] FDEP also determined that the weight of the evidence demonstrates that the Florida Keys had a healthy, well-balanced population of flora and fauna during the baseline period described below. FDEP found the Keys exhibited low nutrient levels, very low chlorophyll *a* concentrations, and seagrass beds that are among the most extensive in the world. [Ex. 424, p. 13, 29 and 37] For the Southwest estuaries, FDEP determined that the weight of the evidence demonstrates that these estuaries had a healthy, well-balanced population of flora and fauna during the baseline period described below. This finding is supported by very low nutrient levels, very low chlorophyll *a* concentrations, no increasing trends in nutrients or chlorophyll *a* and a large percentage (>80 %) of conservation land in the basin, including the largest undisturbed mangrove forests in the state. [Joyner, T. 1057, 1058, 1069; Ex 404A, pp. 10-17]

As discussed in the streams section of the document, above, the reference condition approach, a long-standing peer-reviewed methodology published by EPA, was designed to develop protective numeric nutrient criteria where reference conditions can be confidently defined. The reference condition approach, which has been well documented, peer reviewed, and developed in a number of different contexts, is used to derive numeric nutrient criteria that are protective of applicable designated uses by identifying numeric nutrient criteria concentrations occurring in least-disturbed, healthy coastal and south Florida marine waters that are supporting designated uses.

The EPA concludes that the criteria provided at Subsection 62-302.532(1) (g). Florida Keys and sub-segments are based on scientific rationale and are protective of the uses designated by the State in these marine waters, and therefore, are consistent with the CWA, 40 CFR Part 131, and the EPA's 304(a) guidance on nutrient criteria.

(h). Biscayne Bay (further divided in the rule into sub-segments 1 through 9)

Criteria for the Biscayne Bay are presented in the table in subsection 62-302.532 (1)(h). The general "Maintain Healthy Conditions Approach" as referenced above for south Florida systems was used to develop criteria in the Biscayne Bay. In south Florida marine waters, an approach based on literature and input from local experts using least-disturbed reference conditions is reasonable to determine TN, TP, and chlorophyll *a* concentrations when these waters were supporting designated uses. Therefore, relying upon the reference condition approach to identify numeric nutrient criteria concentrations that protect the designated uses, and avoid any adverse change in natural populations of aquatic flora or fauna is an acceptable approach. Based on a segmentation approach developed by local experts from Florida International University (FIU) and National Park Service (NPS), FDEP proposed nine segments for criteria derivation. Segmentation of Biscayne Bay was performed using data collected as part of FIU's Coastal Water Quality Monitoring Network for Central-South Biscayne Bay using data from September 1993 - September 2008 and for North-Central-South Biscayne Bay using data from June 1996 - September 2009. Criteria were "calculated using long-term water quality data collected from 1995 to 2009 by FIU, with the exception of Manatee Bay-Barnes Sound where only data collected prior to 2006 were used to calculate criteria." (FDEP, Site-Specific Information in Support of Establishing Numeric Nutrient Criteria in Biscayne Bay, Oct. 2011).

FDEP has provided information on the declining levels of nutrients and chlorophyll *a*, as well as the excellent transparency, in the Florida and Biscayne Bays. [Madden, T. 1231] FDEP also determined that the weight of the evidence demonstrates that the Florida Keys had a healthy, well-balanced population

of flora and fauna during the baseline period described below. FDEP found the Keys exhibited low nutrient levels, very low chlorophyll *a* concentrations, and seagrass beds that are among the most extensive in the world. [Ex. 424, p. 13, 29 and 37] For the Southwest estuaries, FDEP determined that the weight of the evidence demonstrates that these estuaries had a healthy, well-balanced population of flora and fauna during the baseline period described below. This finding is supported by very low nutrient levels, very low chlorophyll *a* concentrations, no increasing trends in nutrients or chlorophyll *a* and a large percentage (>80 %) of conservation land in the basin, including the largest undisturbed mangrove forests in the state. [Joyner, T. 1057, 1058, 1069; Ex 404A, pp. 10-17]

As discussed in the streams section of the document, above, the reference condition approach, a long-standing peer-reviewed methodology published by EPA, was designed to develop protective numeric nutrient criteria where reference conditions can be confidently defined. The reference condition approach, which has been well documented, peer reviewed, and developed in a number of different contexts, is used to derive numeric nutrient criteria that are protective of applicable designated uses by identifying numeric nutrient criteria concentrations occurring in least-disturbed, healthy coastal and south Florida marine waters that are supporting designated uses.

The EPA concludes that the criteria provided at Subsection 62-302.532(1) (h). Biscayne Bay and sub-segments are based on scientific rationale and are protective of the uses designated by the State in these marine waters, and therefore, are consistent with the CWA, 40 CFR Part 131, and the EPA's 304(a) guidance on nutrient criteria.

(j). Clam Bay (Collier County)

Criteria for Clam Bay (Collier County) were presented above in the form of an equation to calculate the applicable criteria. Clam Bay is included in the overall mapped area labeled Southwest Florida/Ten Thousand Islands, and is distinguished from the larger area and more specifically delineated in supporting documentation⁵⁰. The supporting documentation, "Clam Bay NNC Report, 2012" and "NNC Technical Note on Clam Bay, 2012," indicates the available reference sites from the larger area had "very different salinity and freshwater conditions than the much smaller coastal barrier creek and lagoon system of Clam Bay..." and describes "confounding biological variables that exist in Clam Bay." Clam Bay was originally included in the WBID 3278Q, but was separated from Moorings Bay after a Mann-Whitney comparison of medians test indicated statistically significant differences in water quality. Data were provided directly from the Collier County Coastal Zone Management Program that collects monthly ambient water quality samples from nine stations located in Clam Bay or queried from IWR Run 42 data (supplied by FDEP). To characterize current conditions of Clam Bay, an assessment was done to determine if Clam Bay water quality fell above or below "impairment" for DO or chlorophyll *a* by comparing data against State standards at F.A.C. 62-303.470 and 62-303.353. For DO the data were compared the standard to be measured as an instantaneous concentration of 4.0 mg/L and for chlorophyll *a* the data were compared to 11 µg/L. If data indicated impairment they were also compared to the existing threshold concentrations established by FDEP (2010) and EPA (2007).⁵¹ (CB Report). It was

⁵⁰ See file: nnc_10000islands_1_estuarymap_ltr.pdf

⁵¹ Threshold values were TN=1.0 mg/L and TP=0.19 mg/L from the following sources: FDEP. 2010. *TMDL Report: Dissolved Oxygen TMDLs for Brushy Creek (WBID 1498) and Sweetwater Creek (WBID 1516), and for DO and Nutrients in Lower Rocky Creek (WBID 1563)*. FDEP Southwest District.

noted that while Clam Bay was impaired for fecal coliform bacteria and DO, it was not impaired for chlorophyll *a* or nutrients based on the screening values of fn 51 or the “impairment threshold” chlorophyll *a* of 11 µg/L.

Based on the conclusions regarding the current conditions, FDEP developed and proposed salinity-normalized numeric criteria targets, for both TN and TP in Clam Bay. FDEP derived salinity-based criteria due to natural temporal variability observed in the TN and TP data, in addition to historically observed differences in nutrients that were related to salinity in other nearby estuaries (Estero Creek wetlands). Because DEP determined that the existing conditions in Clam Bay (data from 2006, 2009, 2010, and 2011) were supportive of the designated uses, a healthy existing conditions approach was used (Pers-comm., Daryll Joyner, FDEP, 2012). FDEP also used water quality data, pollutant loading model development, benthic invertebrate evaluation, toxin quantification, and sediment accumulation rate assessments to determine whether Clam Bay reflected a “healthy” system under this approach.

The numeric nutrient criteria for Clam Bay were derived based on the salinity normalized nutrient criteria approach previously applied in the Hendry Creek TMDL for the Estero Bay wetlands, a system in close proximity to Clam Bay.⁵² (CB Report). The conductivity (a proxy for salinity) values for each waterbody from the Hendry Creek TMDL were first compared to evaluate the hydrologic similarities between water bodies. Prediction limits at 95% were used to calculate TN concentrations for Estero Bay Wetlands and Hendry Creek based on average conductivity. Regressions were run to determine the line of best fit to calculate nutrient targets based on conductivity in the Estero Bay wetlands. Only data collected from within Clam Bay during healthy conditions (2006, 2009, 2010, and 2011) and adjusted for salinity were used. FDEP then developed Clam Bay TN and TP concentration targets (mg/L) based on the exponential relationship found between TP and conductivity in the Estero Bay Wetlands regression and Clam Bay salinity with 90 percent prediction limits, (CB Tech Note). Using the average conductivity value 42,453 µS (25.4 ppt) for Clam Bay, the corresponding TN value is 0.60 mg/L and TP value is 0.057 mg/L. To maintain consistency with the existing calculation of the 10th percentile of DO values from reference waterbodies used by FDEP, the upper 10th prediction limit for the regression between TN or TP and conductivity (from Clam Bay) was used to establish the final numeric criteria. The upper 10th percentile prediction limit was selected to identify the number of TN and TP values at the corresponding conductivity that exceed the upper boundaries of the relationship. Within a calendar year, each individual TN and TP value collected within the waterbody would be compared to the 90th percent prediction limit of the regression relationship between nutrients and conductivity, with a 10 percent exceedance frequency, (CB Tech Note).

The EPA concludes that the criteria provided at Subsection 62-302.532(1) (j). Clam Bay are based on a scientific rationale and are protective of the uses designated by the State in these marine waters and therefore are consistent with the CWA, 40 CFR Part 131, and the EPA’s 304(a) guidance on nutrient criteria. Therefore, this provision is approved by the EPA pursuant to CWA section 303(c).

EPA. 2007. *Total Maximum Daily Loads for the Northern and Central Indian River Lagoon and Banana River Lagoon, Florida: Nutrients and Dissolved Oxygen*. USEPA Region 4.

⁵² A state established and EPA approved TMDL available at the following link:

http://ofmpub.epa.gov/tmdl/attains_impaired_waters.tmdl_report?p_tmdl_id=35222

Subsection 62-302.532(2)

Estuarine and marine areas are delineated in the eight maps of the Florida Marine Nutrient Regions, all dated October 19, 2011, which are incorporated by reference. Copies of these maps may be obtained from the Department's internet site at <http://www.dep.state.fl.us/water/wqssp/swq-docs.htm> or by writing to the Florida Department of Environmental Protection, Standards and Assessment Section, 2600 Blair Stone Road, MS 6511, Tallahassee, FL 32399-2400.

This section defines the geospatial extent of the estuary areas identified by name in the previous subsection. The rule incorporates by reference maps of each of the named estuary areas covered by the above section with specific spatial delineation of the included subsegments corresponding to entries in the criteria table. Direction to a website link and a contact mailing address are provided. The URL address provided by the State in the rule links to a page on the State's website with a heading "Florida Marine Nutrient Regions Maps" with separate individual links as follows:

- Tampa Bay/Clearwater Harbor/St. Joseph Sound
- Sarasota Bay
- Charlotte Harbor⁵³
- Southwest Florida/Ten Thousand Islands (including Clam Bay)
- Florida Bay
- Florida Keys⁵⁴
- Biscayne Bay

This provision identifies the specific spatial coverage where the criteria listed in the previous section are to be applicable in order to provide protection for the subject estuarine waters. EPA concludes that this provision in conjunction with the criteria values in the previous section provides protection of healthy, well-balanced biological communities in the subject estuaries and consistent with the CWA, 40 CFR Part 131, and EPA's 304(a) guidance on nutrient criteria. Therefore, this provision is approved by EPA pursuant to CWA section 303(c).

Subsection 62-302.532(3)

The Department shall establish by rule or final order estuary specific numeric interpretations of the narrative nutrient criteria for TN and TP for Perdido Bay, Pensacola Bay (including Escambia Bay), St. Andrews Bay, Choctawhatchee Bay, and Apalachicola Bay by June 30, 2013, subject to the provisions of Chapter 120, F.S. The Department shall establish by rule or final order the estuary

⁵³ The Charlotte Harbor estuary area map identifies the 9 subsegments included in the table at 62-302.532(1)d., but also identifies the Tidal Caloosahatchee River and the Tidal Peace River, which were not reviewed as part of the estuarine criteria adopted by FDEP. However, the Tidal Caloosahatchee River was included in the list of TMDLs under review by EPA, and will be addressed as part of that review, and since at this time, the Tidal Peace River has not been submitted to EPA, it is expected that it may be addressed site specifically as Hierarchy 1 interpretation at a future date.

⁵⁴ The delineated map of the Florida Keys does not distinguish the "halo zones" around the islands referenced in the Florida Keys TSD as separate from waters extending out from the islands to the seaward extent of the criteria application. As discussed in the text of the Florida Keys subsection above, EPA assumes the criteria for the Florida Keys applies to the entire area identified in this map.

specific numeric interpretation of the narrative nutrient criteria for TN and TP for the remaining estuaries by June 30, 2015, subject to the provisions of Chapter 120, F.S.

This provision establishes a future commitment by the State to develop protective numeric nutrient criteria for TN and TP applicable to additional estuary waters by specified dates. The State has clarified in communication with the EPA that criteria for chlorophyll a will also be developed at that time. This future action would serve to extend the application of numeric nutrient criteria to estuaries beyond those covered by the current rule to much, if not all, of the State's recognized estuarine and coastal waters (as defined by the State and further described above in the EPA's introductory analysis of Section 62-302.532).

Since this provision serves only to schedule actions to be taken by the State in the future, it does not by itself at this time constitute a change to the current water quality standards, and therefore the EPA takes no action on this provision at this time.

Rule 62-302.800

Site Specific Alternative Criteria

Florida WQS allow for the adoption of Site Specific Alternative Criteria (SSAC) in 62-302.800. Before the revisions in FDEP's recent rulemaking, Florida WQS authorized two categories of SSAC. Type I SSAC are allowed when a criterion cannot be met due to natural background conditions or due to man-induced conditions which cannot be controlled or abated. Type II SSAC are allowed, based on site-specific reasons other than those supporting a Type I SSAC, where it can be demonstrated that the proposed criterion would fully maintain and protect human health, existing uses, and designated uses. Florida's nutrient rule includes a new provision authorizing the adoption of Type III SSAC for nutrients. Also, while nutrients had previously been included on a list of pollutants ineligible for Type II SSAC; FDEP has revised its WQS to allow Type II SSAC for nutrients.

Subsection 62-302.800(2)

Type II Site Specific Alternative Criteria: In accordance with the procedures set forth below, affected persons may petition the Department, or the Department may initiate rulemaking, to adopt an alternative water quality criterion for a specific ~~waterbody~~ water body, or portion thereof, on the basis of site-specific reasons other than those set forth above in subsection 62-302.800(1), F.A.C. The Department shall process any such petition as follows: ...

The EPA is taking no action on the addition of the phrase "or the Department may initiate rulemaking" to the first sentence of this provision. Although the first sentence was arguably covered by, but not specifically mentioned in, the EPA's previous approval actions, the EPA does not consider it to be a WQS that is subject to the EPA's CWA section 303(c) authorities because it is not a legally binding norm that describes the desired or expected ambient condition of the water body, specifies the designated use, or establishes antidegradation requirements. Under CWA section 303(c), EPA only has authority to approve or disapprove new or revised WQS. Because this sentence is not a WQS, the EPA could have not previously approved this provision. Thus the EPA hereby clarifies that the Agency did not take CWA section 303(c) action on the first sentence of this provision in its previous approval actions.

Paragraph 62-302.800(2)(d)

The provisions of this subsection do not apply to criteria contained in Rule 62-302.500, F.A.C., or criteria that apply to:

1. Biological Integrity (subsection 62-302.530(10), F.A.C.).
2. B.O.D. (subsection 62-302.530(11), F.A.C.).
- ~~3. Nutrients.~~
- ~~3.~~ 4. Odor (subsections 62-302.500(1), 62-302.530(21), 62-302.530(48), and paragraphs 62-302.530 (49)(b) and 62-302.530(52)(a), F.A.C.).
- ~~4.~~ 5. Oils and Greases (subsection 62-302.530(49), F.A.C.).
- ~~5.~~ 6. Radioactive Substances (subsection 62-302.530(57), F.A.C.).
- ~~6.~~ 7. Substances in concentrations that injure, are chronically toxic to, or produce adverse physiological or behavioral response in humans, animals, or plants (subsection 62-302.530(61), F.A.C.).
- ~~7.~~ 8. Substances, other than nutrients, in concentrations that result in the dominance of nuisance species (subsection 62-302.200(20), F.A.C.).
- ~~8.~~ 9. Total Dissolved Gases (subsection 62-302.530(66), F.A.C.).
- ~~9.~~ 10 No change.

The revisions to 62-302.800(2)(d) add citations from 62-302.530, *Table: Surface Water Quality Criteria*, and for the definition of “nuisance species,” for the parameters which are not candidates for Site-Specific Alternative Criteria (SSAC) under the provisions of Rule 62-302.800. These citations were included to lower the degree of inherent complexity of the regulation and to facilitate a better understanding of the provisions referenced in this paragraph. However, these provisions were considered editorial, non-substantive changes and are hereby approved. The EPA notes, however, that its approval of these editorial, non-substantive changes do not re-open the EPA’s prior approvals of the underlying water quality standards.

Type II SSAC

The State removed “nutrients” from the list of parameters excluded from Type II SSAC. The EPA’s review of the new and revised WQS provisions that warrant the revisions to 62-302.800(2)(d) related to nutrients are addressed in other portions of this decision document. The EPA’s December 2010 final rule establishing nutrient criteria for Florida waters includes a provision that allows for the development of site-specific alternative criteria for nutrients⁵⁵, and nothing in 40 CFR Part 131 excludes any nutrient parameter from consideration by states as a candidate for site-specific criteria development. As a result, the EPA finds that these revisions are consistent with 40 CFR Part 131 and the Clean Water Act.

Type III SSAC for Nutrients

Subsection 62-302.800 (3)

⁵⁵ 40 CFR section 131.43(e) provides that “(t)he Regional Administrator may determine that site-specific alternative criteria shall apply to specific surface waters in lieu of the criteria established in paragraph (c) of this section. Any such determination shall be made consistent with Sec. 131.11.

Type III Site Specific Alternative Criteria (SSAC) for Nutrients: Upon petition by an affected person or upon initiation by the Department, the Department shall establish, by Secretarial Order, site specific numeric nutrient criteria when an affirmative demonstration is made that the proposed criteria achieve the narrative nutrient criteria in paragraph 62-302.530(47)(b), F.A.C., and are protective of downstream waters. Public notice and an opportunity for public hearing shall be provided prior to adopting any order establishing alternative criteria under this subsection.

(a) The Department shall establish a Type III SSAC if all of the following conditions are met:

1. The petitioner demonstrates that the waterbody achieves the narrative nutrient criteria in paragraph 62-302.530(47)(b), F.A.C.

a. For streams, such a demonstration shall require:

i. information on chlorophyll *a* levels, algal mats or blooms, nuisance macrophyte growth, and changes in algal species composition indicating that there is not an imbalance in flora, and
ii. at least two temporally independent SCIs, conducted at a minimum of two spatially-independent stations representative of the waterbody or water segment for which a SSAC is requested, with an average score of 40 or higher, with neither of the two most recent SCI scores less than 35.

b. For lakes, such a demonstration shall require:

i. information on chlorophyll *a* levels, algal mats or blooms indicating that there is not an imbalance in flora or fauna, and

ii. at least two temporally independent LVIs, with an average score of 43 or above.

c. SCIs and LVIs collected at the same location less than three months apart shall be considered to be one sample, with the mean value used to represent the sampling period. SCIs and LVIs shall be conducted during the water quality sampling period described in subparagraph 62-302.800(3)(a)2, F.A.C. There shall be a minimum of two assessments per station or lake, with at least one assessment conducted during the final year.

2. The petitioner provides sufficient data to characterize water quality conditions, including temporal variability, that are representative of the biological data used to support the SSAC. The water quality data shall be collected in the same waterbody segment as the biological monitoring stations and at a frequency and duration consistent with the study design concepts described in the document titled *Development of Type III Site Specific Alternative Criteria (SSAC) for Nutrients* (DEP-SAS-004/11), dated October 24, 2011, which is incorporated by reference herein. Copies of this document may be obtained from the Department's internet site at <http://www.dep.state.fl.us/water/wqssp/swq-docs.htm> or by writing to the Florida Department of Environmental Protection, Standards and Assessment Section, 2600 Blair Stone Road, MS 6511, Tallahassee, FL 32399-2400. Water quality data associated with extreme climatic conditions, such as floods, droughts, and hurricanes, shall be excluded from the analysis.

3. Demonstration of downstream protection by one of the following methods:

a. Downstream waters are attaining water quality standards related to nutrient conditions pursuant to Chapter 62-303, F.A.C.; or

b. If the downstream waters do not attain water quality standards related to nutrient conditions:

i. The nutrients delivered by the waterbody subject to the Type III SSAC meet the allocations of a downstream TMDL; or

ii. The nutrients delivered by the waterbody are shown to provide for the attainment and maintenance of water quality standards in downstream waters.

(b) The SSAC shall be established at a level representative of nutrient loads or concentrations that have been demonstrated to be protective of the designated use by maintaining balanced,

natural populations of aquatic flora and fauna. This demonstration shall take into account natural variability by using statistical methods appropriate to the data set, as described in *Development of Type III Site Specific Alternative Criteria (SSAC) for Nutrients* (DEP-SAS-004/11).

Subsection 62-302.800(3) establishes the demonstration requirements and the administrative process to establish a Type III SSAC. The demonstration requirements for adoption of Type III SSAC are established in paragraphs (a) and (b) of this subsection. Prior to State adoption of a Type III SSAC, two demonstrations are required: (1) the SSAC must achieve the narrative nutrient criteria in paragraph 62-302.530(47)(b), and (2) the SSAC must be protective of downstream waters. Type III SSAC are adopted by Secretarial Order, and the administrative process for adoption of a Type III SSAC must include a public notice of a proposed SSAC and provide for an opportunity for a public hearing on the proposed revision to WQS. These provisions of 62-302.800(3) are consistent with the requirements of 40 CFR Part 131 and the CWA and are approved by the EPA pursuant to section 303(c) of the Act. The EPA is taking no action on the phrase “upon initiation by the Department” for the same reasons outlined in the the EPA’s analysis of 62-302.800(2) above.

The EPA notes that each adoption of a Type III SSAC for nutrients will be reviewed by the EPA to ensure that all of the requirements for State revision of WQS have been completed, and to determine whether the provisions of 40 CFR section 131.11(a) and (b) are met. A State-adopted SSAC for nutrients based on this provision will only become effective for purposes of the CWA after approval by the EPA pursuant to CWA section 303(c).

Type III SSAC Compliance with 62-302.530(47)(b)⁵⁶

Sub-subparagraph (3)(a)1.a. addresses the demonstration requirements for Type III SSAC for streams. In order to demonstrate that a Type III stream SSAC achieves the narrative nutrient criteria in paragraph 62-302.530(47)(b), a petition or proposal must present (1) information on chlorophyll a levels, algal mats or blooms, nuisance macrophyte growth, and changes in algal species composition indicating that there is not an imbalance in flora, and (2) at least two temporally independent SCIs, conducted at a minimum of two spatially-independent stations representative of the waterbody or water segment for which a SSAC is requested, with an average score of 40 or higher, with neither of the two most recent SCI scores less than 35.

The information requirement for demonstration of no imbalance in flora for freshwater streams focuses on site specific data on chlorophyll a levels, algal mats or blooms, nuisance macrophyte growth and changes in algal species composition. These are appropriate aspects of a stream’s floral diversity and relative composition that are typically used to determine if a stream’s community of flora has been affected due to the presence of nutrients and whether an imbalance of the natural population of flora has occurred or would be expected at certain floral thresholds. See EPA’s analysis of 62-302.531(2)(c). For the reasons discussed in the EPA’s review of 62-302.531(2)(c), the EPA finds that the SSAC demonstration requirements in subclause (3)(a)1.a.i are consistent with the requirements of 40 CFR Part 131 and the CWA and are approved by the EPA pursuant to section 303(c) of the Act.

⁵⁶ 62-302.530 (47)(b) is part of Florida’s narrative nutrient criteria, and states, “In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna.”

The second qualifying criteria for a Type III SSAC for streams requires a minimum average SCI score of 40, with neither of the two most recent SCI assessment scores of less than 35. As discussed in the EPA's analysis of 62-302.531(2)(c), the State has chosen to utilize the SCI as a measure of compliance with the component of 62-302.530(47)(b) for protection of aquatic fauna.

In the preamble to the December 2010 final rule, the EPA stated that an analysis of indicators of long-term stress, such as the SCI, in addition to other documentation, is an integral component of nutrient SSAC development. Federal Register Vol. 75, No. 233, Page 75790. See also EPA's analysis of 62-302.531(2)(c). For the reasons discussed in the EPA's review of 62-302.531(2)(c), the EPA finds that the demonstration requirements in subclause (3)(a)1.a.ii are consistent with the requirements of 40 CFR Part 131 and the CWA and are approved by the EPA pursuant to section 303(c) of the Act.

Sub-subparagraph (3)(a)1.b addresses demonstration requirements for Type III SSAC for freshwater lakes. In order to demonstrate that a Type III SSAC for a freshwater lake achieves the narrative nutrient criteria in paragraph 62-302.530(47)(b), a petition or proposal must present (1) information on chlorophyll *a* levels, algal mats or blooms indicating that there is not an imbalance in flora or fauna, and (2) at least two temporally independent LVIs, with an average score of 43 or above.

The information requirement for demonstration of no imbalance in flora for freshwater lakes focuses on chlorophyll *a* levels and site-specific data on algal mats or blooms. The presence of algal mats or blooms are appropriate aspects of a lake's flora diversity and relative composition that are typically used to determine if a lake's community of flora has been affected due to the presence of nutrients to the extent that an imbalance of the natural population of flora has occurred, or would be expected at certain chlorophyll *a* levels. In the EPA's Interim Draft document, *Technical Assistance for Developing Nutrient Site-Specific Criteria in Florida*, June 2011, the EPA included algal mats as the type of qualitative data that are appropriate to evaluate the need and protectiveness of a SSAC in the Agency's discussion of information necessary to support a proposed SSAC, and stated that any modeling in support of a SSAC should simulate algal responses.⁵⁷ See also the EPA's analysis of 62-303.352(2).

Florida has adopted the use of the LVI as an appropriate biological assessment criterion for freshwater lakes. The EPA's evaluation of the State's selection of an LVI value of 43 as an ambient condition that supports Florida's aquatic life designated use is addressed in the EPA's review of 62-303.330(3)(d).

For the reasons discussed above, as well as the reasons discussed in the EPA's review of 62-303.330(3)(d), the EPA finds that the demonstration requirements in sub-subparagraph (3)(a)1.b are consistent with the requirements of 40 CFR Part 131 and the CWA and are approved by the EPA pursuant to section 303(c) of the Act.

The first sentence of FDEP's rule at 62-302.800(3)(a)1.c. requires that assessments using the SCI or LVI methodologies which are collected at the same location less than three months apart will be considered as one sample, using the average of the individual calculated indices. This provision establishes similar requirements as those in 62-302.531(5), and both provisions relate to data reliability regarding the development of site specific numeric interpretations of 62-302.530(47)(b). For the same reasons as

⁵⁷ See http://www.epa.gov/region4/water/wqs/documents/draft_tech_asst_for_ssac_in_florida_june_2011.pdf

summarized in the EPA's review of 62-302.531(5), this provision is not considered to be a new or revised water quality standard.

The second sentence of 62-302.800(3)(a)1.c. requires that SCI or LVI assessments made in support of the development of a SSAC are conducted during the same time frame as ambient water quality monitoring for the water body under consideration for a Type III SSAC. This provision contains restrictions as to the extent, timing and relative location of water quality data that must be used in conjunction with biological health assessments to develop a Type III SSAC. This provision establishes that the two types of data, i.e., water quality and biological, must be sufficiently temporally and geographically related in order to ensure that water quality criteria protect a biological condition that will maintain or attain the designated use of the water body. This is a scientifically defensible approach for development of SSAC, and this provision is approved by the EPA pursuant to section 303(c) of the Act.

The third sentence of FDEP's rule at 62-302.800(3)(a)1.c. also requires a minimum of two biological assessments per station or lake under consideration for a SSAC, with a minimum of one assessment during the final year of sampling. Although the EPA agrees that this is a scientifically defensible approach to development of SSAC, this provision does not describe the ambient condition of the water or establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that the State uses to identify water quality limited segments, nor does it establish a designated use. Therefore, this provision is not a water quality standard as that term is used in CWA Section 303(c) or the regulations in 40 CFR Part 131.

FDEP's rule at 62-302.800(3)(a)2. provides that a petition or proposal must be based on "sufficient data to characterize water quality conditions, including temporal variability, that are representative of the biological data used to support the SSAC," and "(t)he water quality data shall be collected in the same waterbody segment as the biological monitoring stations and at a frequency and duration consistent with the study design concepts described in the document titled *Development of Type III Site Specific Alternative Criteria (SSAC) for Nutrients*." This provision contains restrictions as to the extent, timing and relative location of water quality data that must be used in conjunction with biological health assessments to develop a Type III SSAC. Similar to the provision in 62-302.800(3)(a)1.c. above, this provision establishes that the two types of data, i.e., water quality and biological, must be sufficiently temporally and geographically related in order to ensure that water quality criteria protect a biological condition that will maintain or attain the designated use of the water body. This is a scientifically defensible approach for development of SSAC, and this provision is approved by EPA pursuant to section 303(c) of the Act.

The last sentence of 62-302.800(3)(a)2. allows for the exclusion of certain data from the development of a Type III SSAC, including "data associated with extreme climatic conditions, such as floods, droughts, and hurricanes, shall be excluded from the analysis." This provision defines when data will be excluded in the development of a Type III SSAC based on factors related to certain atypical events. This provision relates to the reliability of data but does not establish a new or revised criterion because it does not describe the ambient condition of the water or establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that the State uses to identify water quality limited segments nor does it establish a designated use. This provision does not stipulate that such data will not be used to assess compliance with applicable criteria. Therefore, the last sentence of 62-302.800(3)(a)2.

is not a new or revised water quality standard as that term is used in CWA Section 303(c) or the regulations in 40 CFR Part 131.

Protection of Downstream Waters in Development of Type III SSAC

62-302.800(3)(a)3. provides for two options to demonstrate that a Type III SSAC is protective of the WQS of downstream waters: (1) evaluation that shows downstream waters are attaining water quality standards related to nutrient conditions pursuant to Chapter 62-303, F.A.C.; or (2) if the downstream waters do not attain water quality standards related to nutrient conditions, a demonstration that the nutrients delivered by the waterbody subject to the Type III SSAC meet the allocations of a downstream TMDL or the nutrients delivered by the waterbody are shown to provide for the attainment and maintenance of water quality standards in downstream waters.

Where the downstream water is attaining WQS, 62-302.800(3)(a)3. allows a Type III SSAC to be established if downstream waters are attaining WQS for nutrients during the timeframe that the water quality conditions in the upstream water body, i.e., the water body to which the Type III SSAC apply, are representative of the SSAC.

Where the downstream water is impaired, the loading of nutrients from the upstream water body must either meet the requirements of a TMDL for the downstream water body under the terms, i.e., magnitude, duration and frequency, of the SSAC, or the loading of nutrients from the upstream water body must be demonstrated to provide for the attainment and maintenance of downstream WQS. EPA understands that the required “attainment and maintenance” demonstration could be made for cases where the State has not yet developed a TMDL for the downstream WQS impairment. Each of these outcomes is consistent with the EPA’s requirements for protection of downstream waters in 40 CFR 131.10(b), which states:

In designating the uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the **attainment and maintenance** of downstream waters.
[Emphasis added]

FDEP’s rule at 62-302.800(3)(a)3 clearly requires that a SSAC “take into consideration” downstream waters by ensuring the attainment of downstream WQS both where a downstream water is attaining its nutrient criteria and where a downstream water is impaired. This provision also ensures the continued maintenance of downstream WQS where the downstream WQS currently meets its nutrient criteria. The EPA also notes that, for cases where downstream WQS impairment is a consideration in the development of Type III SSAC, this approach achieves a numeric-based requirement for protection of downstream waters. (See the EPA’s evaluation of 62-303.390(2) for information on additional downstream protection requirements that apply in cases where the downstream waters are attaining their applicable nutrient criteria.) Based on the above, the EPA finds that this provision is consistent with the requirements of 40 CFR section 131.10(b), and is approved by the EPA pursuant to section 303(c) of the Act.

FDEP’s rule at 62-302.800(3)(b) requires that a Type III SSAC be established at a “level representative of nutrient loads or concentrations that have been demonstrated to be protective of the designated use by maintaining balanced, natural populations of aquatic flora and fauna.” This provision’s expression of

SSAC is consistent with the EPA's definition of "criteria" at 40 CFR section 131.3(b) as "elements of State water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use." The EPA finds that FDEP's rule at 62-302.800(3)(b) is consistent with the CWA and implementing regulations and is approved by the EPA pursuant to section 303(c) of the Act.

FDEP's rule at 62-302.800(3)(b) also requires that a SSAC take into account natural variability by using the methodologies in the document, *Development of Type III Site Specific Alternative Criteria (SSAC) for Nutrients*. The EPA reviewed the SSAC Development Document to determine whether any provisions in the document constitute new or revised water quality standards (WQS) and determined that none of the provisions of the SSAC Development Document establish or revise designated uses, do not establish or revise previously adopted criterion, and do not modify the state's antidegradation policy. The EPA's review of this document is summarized in Appendix A to this decision document.

Section 62-302.800(6) was revised to include one additional sentence, which provides:

(6) (5) Type II sSite specific alternative criteria apply to the water bodies, or portions of the water bodies, listed below. For dissolved oxygen site specific alternative criteria, normal daily and seasonal fluctuations above the levels listed in the table below shall be maintained. For site specific alternative criteria with seasonal limits, the generally applicable criteria in Rule 62-302.530, F.A.C., apply at other times of the year.

A revision to 62-302.800(6) was needed to reflect that this provision now only applies to Type II SSAC, and does not address Type I SSAC or Type III SSAC. The provision was also revised to acknowledge that certain SSAC apply during defined months or seasons during each year, and additional language was also adopted to clarify that the "statewide" criteria in rule 62-302.530 apply during any part of the year that SSAC do not address. Based on the above, the EPA finds that these revisions and clarifications are consistent with 40 CFR Part 131 and the Clean Water Act and are approved by the EPA pursuant to section 303(c) of the Act.

Overview of Revisions to the Impaired Waters Rule, Chapter 62-303

Chapter 62-303, F.A.C., entitled Identification of Impaired Surface Waters (Impaired Waters Rule or IWR), establishes a methodology for the FDEP to identify waterbodies for inclusion on the list of water quality-limited segments requiring total maximum daily loads (TMDLs) pursuant to section 303(d) of the Act and 40 C.F.R. Part 130. In 2011, FDEP amended the IWR to provide an assessment methodology for the new or revised nutrient water quality standards addressed above.

EPA previously reviewed and approved or disapproved new or revised WQS within the IWR in 2005⁵⁸ and again in 2008⁵⁹, after Florida revised the rule to make substantive and editorial changes to the IWR. In its review and approval or disapproval of the new or revised WQS portions of the 2011 amended IWR

⁵⁸ "Determination on Referral Regarding Florida Administrative Code Chapter 62-303 Identification of Impaired Surface Waters," United States Environmental Protection Agency, July 7, 2005.

⁵⁹ "Determination Upon Review of Amended Florida Administrative Code Chapter 62-303 Identification of Impaired Surface Waters," **Error! Main Document Only.** United States Environmental Protection Agency, February 8, 2008.

(amended IWR), EPA applied the same analytical framework that it used in the 2005 and 2008 Determinations. In its review of the amended IWR, EPA examined only those portions of the rule that were amended in 2011.

For the reasons discussed below, EPA has concluded that several portions of the amended IWR are new or revised water quality standards, but also has concluded that many portions of the amended IWR are not new or revised water quality standards. Specifically, those provisions of the IWR relating to magnitude, duration and frequency of load or concentration exceedances that define or revise the “ambient condition” or “level of protection” that the State affords waters for purposes of making attainment decisions constitute new or revised water quality standards. An attainment decision is one where a State decides what it means to attain or to not attain any “water quality standard applicable to such waters” for purposes of establishing total maximum daily loads (TMDLs) under section 303(d)(1)(A) of the Act, 33 U.S.C. § 1313(d)(1)(A). TMDLs, in turn, serve as the basis for NPDES permit limitations. Provisions that affect attainment decisions made by the State and that define, change, or establish the level of protection to be applied in those attainment decisions have the effect of revising existing standards under section 303(c) of the Act. These provisions constitute new or revised water quality standards subject to EPA review pursuant to the Act. Conversely, provisions that merely describe the sufficiency or reliability of information necessary for the State to make an attainment decision, and do not change a level of protection, are not WQS but are rather methodologies under section 303(d) of the Act. See 40 C.F.R. § 130.7(b)(6). While these provisions are not reviewed by EPA as new or revised water quality standards, they are considered by EPA in reviewing lists of impaired waters submitted by the State pursuant to section 303(d) of the CWA.

For example, several IWR provisions reference data windows that limit the age of data FDEP will consider when assessing whether waterbodies attain water quality standards. Such data windows are not water quality standards because they are not related to the ambient condition in the waterbody, i.e., what level of pollutant (or pollutant indicator) may be in the waterbody before determining that the waterbody is not meeting all applicable water quality standards. Instead, these provisions relate to the information necessary to conduct an attainment decision pursuant to section 303(d) of the Act and 40 C.F.R. § 130.7(b)(5) - (6) (as compared to section 303(c) of the Act) and, as such, they do not constitute water quality standards. EPA notes, however, that bright line cut-offs that result in a state not considering data beyond a certain age result in the state not fulfilling the requirement in 40 CFR § 130.7(b)(5) to consider all existing or readily available information when assessing waters pursuant to section 303(d).⁶⁰ EPA further notes that FDEP has developed a process for including and considering data collected and analyzed outside of data periods established in the IWR methodology. Whether the state has appropriately considered all existing or readily available information when assessing its waters is a factor considered by EPA when reviewing FDEP’s section 303(d) list submittals.

Pursuant to section 303(c) of the CWA, as set forth more fully below, EPA has reviewed and is approving those portions of the amended IWR that the Agency has determined to be new or revised water quality standards.

There were some revisions that were determined to not be a new or revised water quality standard. These provisions which were determined to not be new or revised water quality standards are generally

⁶⁰ Sierra Club et al. v. Leavitt, 488 F.3d 904 (11th Cir. 2007).

discussed within the respective section that addresses the provisions which were determined to be a new or revised water quality standards (for example, two provisions on lakes will be located in the lake nutrient assessment section, although each provision may have received a different conclusion with regard to whether or not it is subject to EPA's review). The following provisions were determined to not be new or revised water quality standards, however, they are listed in this section, because there is not a corresponding related section to include EPA's analyses regarding why the provision was not a new or revised water quality standard within the remainder of this document.

62-303.150:

EPA determined that 62-303.150 only addresses the purpose of the study list and does not affect an attainment decision related to a level of protection afforded by Florida to its ambient waters. Therefore, EPA has determined that this provision does not constitute a new or revised water quality standard.

62-303.310(2) and (3):

EPA determined that 62-303.310(2) and (3) do not establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that is then utilized to make an attainment decision to identify water quality limited segments, nor do they establish designated uses, and therefore, do not constitute a new or revised water quality standard.

62-303.330(5):

A non-substantive change was made to 62-303.330(5). This provision was previously determined to not be a new or revised WQS.

62-303.390(1):

Subsection 62-303.390(1) describes when a water body shall be placed on the study list for an indication of nonattainment of water quality standards, but the Department has not determined the causative pollutant(s). Since this subsection does not establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that is then utilized to make an attainment decision to identify water quality limited segments, nor does it establish designated uses, and therefore, does not constitute a new or revised water quality standard.

62-303.390(2)(c):

Subsection 62-303.390(2)(c) is administrative in nature, identifying which portion of the State section 303(d) list will include waters that are impaired for dissolved oxygen where no cause for that impairment has been identified. This provision does not establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that is used to make an attainment decision nor does it establish a designated use. Therefore, subsection 62-303.390(2)(c) does not constitute a new or revised water quality standard.

62-303.390(2)(d)

Subsection 62-303.390(2)(d) is administrative in nature, implementing rule 62-303.600. This provision does not establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that is used to make an attainment decision nor does it establish a designated use. EPA has concluded that subsection 62-303.390(2)(d) does not constitute a new or revised water quality standard.

62-303.390(3) through (5):

Subsection 62-303.390(3) describes the listing process with regard to the status of waters with site specific numeric interpretations, but this process does not result in an attainment decision. Rather, attainment decisions for waters subject to a SSAC will be determined by provisions in section 62-303.450. Subsection 62-303.390(4) describes how the State will determine, for a water that is biologically impaired, the pollutant causing that impairment. Subsection 62-303.390(5) states a goal for when FDEP will undertake certain actions but does not establish requirements for Agency action. None of these subsections establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that is then utilized to make an attainment decision to identify water quality limited segments, nor do they establish designated uses. Therefore, these provisions do not constitute new or revised water quality standards.

62-303.450(2), (5), and (6):

Subsection 62-303.450(2) simply restates the provisions of 62-303.351(3), .352(2), and .353(3). Subsection 62-303.450(5) just restates FDEP's current expectation for use of SSAC. Subsection 62-303.450(6) establishes requirements regarding data reliability and sufficiency. None of these subsections establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that is then utilized to make an attainment decision to identify water quality limited segments, nor do they establish designated uses. Therefore, these provisions do not constitute new or revised water quality standards.

Revisions to 62-303.200, Definitions

EPA determined that the revisions to 62-303.200(1), (3), (7), the new text of (9), (12)-(14), (17), (21), (22), (25), (27), (29), (30), (32), (35) and (36) [as numbered in the submitted regulatory changes] do not further modify the provisions⁶¹ of 62-302 (in the case of (3) and (30)) or are restatements of provisions already addressed as part of 62-302 (in the case of all other definitions listed above), and thus do not constitute new or revised WQS. As a result, EPA will not be reviewing those revisions further.

EPA determined that the revisions to 62-303.200(2), (8), the deleted portion of (9), (28), and the deleted definition of "trophic state index," constitute new or revised water quality standards. These revisions are discussed further below.

Subsection 62-303.200(2)

The definition for "BioRecon" was revised as follows:

(2) "BioRecon" shall mean a biological assessment that measures stream health in predominantly freshwaters using benthic macroinvertebrates, performed and calculated using the Standard Operating Procedures (SOP) for the BioRecon in the document titled *BRN 1000: Biological*

⁶¹ By determining that the provision does "not further modify", EPA has determined that a provision does not establish or change an already established level of protection related to the magnitude, duration, or frequency of water quality criteria that are used by the State to identify water quality-limited segments nor does it establish a designated use. Therefore, such a provision is not a new or revised water quality standard as that term is used in CWA Section 303(c) or the regulations in 40 CFR Part 131.

Reconnaissance Field Method (DEP-SOP-003/01 BRN 1000), dated 10-24-11, which is incorporated by reference herein. Copies of the SOP may be obtained from the Department's internet site at <http://www.dep.state.fl.us/water/wqssp/swq-docs.htm> or by writing to the Florida Department of Environmental Protection, Standards and Assessment Section, 2600 Blair Stone Road, MS 6511, Tallahassee, FL 32399-2400. ~~evaluation conducted in accordance with standard operating procedures (SOPs) FT 3000, FS 7410, and LT 7100, as promulgated in Rule 62-160.800 F.A.C.~~

The definition for BioRecon is applied in IWR provision 62-303.330 and .430, which establishes a new biological assessment criterion. This provision, as applied in 62-303.330 and .430, defines a measurement of designated use support for aquatic life and therefore establishes a level of protection that is applied to a water body. The provisions add or further define a new biological assessment criterion to Florida's currently approved water quality criteria contained in 62-302.530(10). EPA has concluded that IWR provision 62-303.200(2) constitutes a new or revised water quality standard because it adds or further defines a new water quality criterion that the State uses when making attainment decisions to identify water quality limited segments.

The BioRecon method is appropriate for Florida waters and aquatic species because the ratings/scores generated using this assessment provide an accurate and scientifically defensible measurement of designated use attainment in streams. This provision is consistent with 40 CFR Part 131 and the Clean Water Act and is approved by EPA pursuant to section 303(c) of the Act.

The referenced document BRN 1000 is not a new or revised WQS for the purposes of EPA's CWA section 303(c) review, since it only contains the details of analytical procedures that are used to calculate the BioRecon.

Subsection 62-303.200(8)

The definition for "lake" was added and reads as follows:

(8) "Lake" shall mean a lentic fresh waterbody with a relatively long water residence time and an open water area that is free from emergent vegetation under typical hydrologic and climatic conditions. Aquatic plants, as defined in subsection 62-340.200(1), F.A.C., may be present in the open water. Lakes do not include springs, wetlands, or streams (except portions of streams that exhibit lake-like characteristics, such as long water residence time, increased width, or predominance of biological taxa typically found in non-flowing conditions).

As discussed above in the EPA's review of the definition of "lake" in 62-302.200(16), this provision defines the physical extent that water quality criteria for freshwater lakes apply. The revision to the definition in 62-303.200(8) establishes expectations for certain ambient fresh waters for the purposes of Chapter 62-303. The Chapter 62-302 definition applies only for purposes of implementing nutrient criteria, while the Chapter 62-303 has no such limitation. For the same reasons used by EPA in approving the definition of "lakes" in 62-302.200(16), the EPA agrees that the definition of "lake" in 62-303.200(8) is appropriate to delineate freshwater water bodies in the application of water quality criteria for lakes. This definition is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.200(9)

The definition for “lake vegetation index” was added in place of the previous definition for “lake condition index” and reads as follows:

~~(9)(8)~~ “Lake Vegetation Index (LVI)” shall mean a Biological Health Assessment that measures lake biological health in predominantly freshwaters using aquatic and wetland plants, performed and calculated using the Standard Operating Procedures for the LVI in the document titled *LVI 1000: Lake Vegetation Index Methods* (DEP-SOP-003/11 LVI 1000) and the methodology in *Sampling and Use of the Lake Vegetation Index (LVI) for Assessing Lake Plant Communities in Florida: A Primer* (DEP-SAS-002/11), both dated 10-24-11, which are incorporated by reference herein. Copies of the documents may be obtained from the Department’s internet site at <http://www.dep.state.fl.us/water/wqssp/swq-docs.htm> or by writing to the Florida Department of Environmental Protection, Standards and Assessment Section, 2600 Blair Stone Road, MS 6511, Tallahassee, FL 32399-2400. ~~“Lake Condition Index” shall mean the benthic macroinvertebrate component of a biological evaluation conducted following the procedures outlined in “Development of Lake Condition Indexes (LCI) for Florida,” Florida Department of Environmental Protection, July, 2000, which is incorporated by reference.~~

The definition of LVI in 62-303.200(9) replaces the definition of Lake Condition Index (LCI) that was previously adopted by the State as 62-303.200(8). That definition of LCI was approved by the EPA as a new/revised provision of Florida WQS on February 19, 2008. The definition of LVI in 62-303.200(9) is a restatement of the new or revised WQS established at 62-302.200(17). EPA’s review of 62-302.200(17) and approval of that subsection as a new or revised WQS is discussed at page 6 above. Because subsection 62-303.200(9) simply restates 62-302.200(17), EPA has determined that subsection 62-303.200(9) does not constitute a new or revised WQS. Because the LCI is being replaced⁶² with an index that is more responsive to anthropogenic impacts, the deletion of the LCI definition is consistent with 40 CFR Part 131 and the Clean Water Act and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.200(28)

The definition for “stream” was revised and now reads as follows:

~~(28) (24)~~ “Stream” shall mean a free-flowing, predominantly fresh surface waterbody water that flows in a defined channel with banks, and includes rivers, creeks, branches, freshwater sloughs, and other similar water bodies. Streams do not include wetlands or portions of streams that

⁶² The LCI measured the macroinvertebrate community of lakes but FDEP determined that it should not be used due to statistical inconsistencies with land use and human disturbance indicators (FDEP. 2007. Evaluation of Benthic Macroinvertebrate Assemblages as Indicators of Lake Condition, Page 14. (http://www.dep.state.fl.us/labs/docs/lake_macro_testing.pdf). FDEP has determined that the LVI, which measures floral components of the lake ecosystem, was highly correlated with the human disturbance gradient and other independent measures of human disturbance. FDEP concluded that the LVI is a reliable indicator of lake condition and has sufficient statistical precision to detect multiple levels of biological condition (FDEP2007. Assessing the Biological Condition of Florida Lakes: Development of the Lake Vegetation Index (LVI). Page 2).

exhibit lake characteristics (e.g., long water residence time, increased width, and predominance of biological taxa typically found in non-flowing conditions).

The revised definition of stream defines the spatial extent to which certain attainment decisions apply for the purposes of Chapter 62-303⁶³. Subsection 62-303.200(28) differs from the definition established in Chapter 62-302. The Chapter 62-302 definition applies only for purposes of interpreting the nutrient criteria in 62-302.530(47)(b) and includes exclusions for certain non-perennial segments and ditches, canals, and other conveyances that are man-made or predominantly channelized or physically altered, while the Chapter 62-303 has no such limitations. Unless stated otherwise in Chapter 62-303, the definition of stream in 62-303.200(28) applies all WQS provisions in Chapter 62-303 to streams meeting the definition in 62-303.200(28). EPA considers 62-303.200(28) a change to water quality standards since it defines where the stream-related attainment decisions are to be made and thus helps set expectations for ambient waters. The revisions to the stream definition are consistent with 40 CFR Part 131 and the CWA and are approved by EPA pursuant to section 303(c) of the Act.

Deleted Subsection 62-303.200(25)

The definition for “trophic state index” was deleted. It previously stated:

~~(25) “Trophic State Index” or “TSI” means the trophic state index for lakes, which is based on lake chlorophyll a, Total Nitrogen, and Total Phosphorus levels, and is calculated following the procedures outlined on pages 86 and 87 of the State’s 1996 305(b) report, which are incorporated by reference.~~

EPA approved the State’s definition of TSI as a new or revised provision of Florida WQS on February 19, 2008. During the State’s 2011 rulemaking, the State deleted the definition of TSI and also adopted the use of the LVI as a new or revised biological health assessment at subsection 62-302.200(17). EPA’s review of 62-302.200(17) and approval of the subsection as a new or revised WQS is discussed at page 6 above. The EPA expects that, in many cases, biological health assessments of freshwater lakes will now be made using the LVI where the TSI may have been historically used by the State, at least in part, to conduct those assessments. EPA also notes that the State has adopted numeric criteria for chlorophyll a, TN, and TP for freshwater lakes based on interpretation of the State’s narrative nutrient criteria in 62-302.530(47)(b), and these numeric criteria will serve many purposes that may have supported previous use of the TSI in making use assessment decisions. The deletion of the TSI definition is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

New and Revised Provisions of the Planning, Study, and Verified Lists for Biological and Nutrient Assessments

Florida’s assessment methodology establishes three categories for waters that have been identified as impaired, or potentially impaired, waters: the planning list, study list, and verified list. Both the study and verified lists will be submitted to EPA as Florida’s CWA section 303(d) list of impaired waters.

⁶³ The previous language from 62-303.200(21) included “canals” among the now deleted list of waterbodies that could comprise streams.

Pursuant to State law, however, FDEP may only develop and establish TMDLs for those waterbodies on the verified list.⁶⁴

Florida has described the bases for placing a waterbody on the planning list in sections 62-303.310, 62-303.330, and 62-303.350 through 62-303.354 of the IWR. Florida has described the bases for placing a waterbody on the study list in section 62-303.390. Florida has described the bases for placing a waterbody on the verified list in provisions 62-303.430 and 62-303.450. The State's verified list process also includes provision 62-303.420, which is described in a later section. Finally, Florida has identified the bases for removing a water body from the verified list in section 62-303.720.

EPA determined that provisions of the amended IWR that affect only the State's decision to include a waterbody on the planning list do not constitute new or revised water quality standards, because placing a water on the planning list does not affect an attainment decision. To the extent that a planning list provision also affects the State's decision to identify a waterbody on the study or verified lists, however, that provision does affect an attainment decision. EPA considered such provisions further to determine whether the provision also defined, changed, or established the level of protection to be applied in those attainment decisions.

The biological assessment provisions will be discussed first, followed by the nutrients assessment provisions. For the nutrients assessment provisions, the discussion will be organized by waterbody type. For both biological and nutrients assessment, the planning, study, and verified lists will be discussed together.

Biological Assessment Provisions

Overview

The provisions of 62-303.330(3) [except for subsections (3)(a) and (3)(c)] and 62-303.330(4) [first sentence only in subsection (4)] and 62-303.430(2) through (4) were determined to be new or revised water quality standards, but 62-303.330(2), 62-303.330(3)(a), 62-303.330(3)(c), 62-303.330(4) [last two sentences of subsection (4)], 62-303.390(2)(b), as well as 62-303.430(1), (5) and (6), were determined not to be new or revised water quality standards.

Subsection 62-303.330(2)

(2) Biological Health Assessments ~~Bioassessments~~ used to evaluate predominantly fresh water ~~assess~~ streams and lakes under this rule shall include ~~BioRecons~~, the Stream Condition Index (SCI) Indices (SCIs), and the Lake Vegetation Index (LVI), and the Shannon-Weaver Diversity Index. the benthic macroinvertebrate component of the Lake Condition Index (LCI), which only applies to clear lakes with a color less than 20 platinum-cobalt units. BioRecons can also be used to evaluate predominantly fresh water streams under this rule. Because these Biological Health Assessment ~~bioassessment~~ procedures require specific training and expertise, persons conducting a BioRecon, SCI or LVI ~~the bioassessments~~ must comply with the quality assurance requirements of Chapter 62-160, F.A.C. (including adherence to *Sampling and Use of the Stream*

⁶⁴ See Fla. Sta. § 403.067; section 62-303.150, F.A.C.

Condition Index (SCI) for Assessing Flowing Waters: A Primer (DEP-SAS-001/11), which was incorporated by reference in subsection 62-303.200(29), F.A.C., and Sampling and Use of the Lake Vegetation Index (LVI) for Assessing Lake Plant Communities in Florida: A Primer (DEP-SAS-002/11), which was incorporated by reference in subsection 62-303.200(9), F.A.C.), attend at least eight hours of Department sanctioned field training; and pass a Department sanctioned field audit that verifies the sampler follows the applicable SOPs, as set forth in Chapter 62-160, F.A.C., before their Biological Health Assessment bioassessment data will be considered valid for use under this rule.

Subsection 62-303.330(2) identifies the specific indices that are now defined as “biological health assessments.” Except for the inclusion of the BioRecon, the list of specific indices included in this section is a restatement of the indices established in subsection 62-302.200(4).

The use of the BioRecon assessment has been reintroduced as an option for evaluating predominantly streams as part of Chapter 62-303. However, since this provision is used only for planning list purposes, and does not affect attainment decisions, EPA determined that the BioRecon provision does not constitute a new or revised water quality standard. As for the remainder of the indices listed in subsection 62-303.330(2), EPA’s review of subsection 62-302.200(4) and approval of that subsection as a new or revised WQS is discussed on pages 4-5 above. For all of these reasons, EPA has determined that subsection 62-303.330(2) does not constitute a new or revised WQS.

Subsection 62-303.330(3)

(3) A water segment shall be included on the planning list if it meets any of the following conditions: Water segments with at least one failed bioassessment or one failure of the biological integrity standard, subsection 62-302.530(11), F.A.C., shall be included on the planning list for assessment of aquatic life use support.

(a) One of the two most recent Shannon-Weaver Diversity Index (subsection 62-302.530(10), F.A.C.) scores is less than 75 percent of the value from an appropriate control site.

(b) One of the two most recent Stream Condition Index scores is:

1. A score of < 35; or

2. A 20 point reduction from the historic maximum value if the historic maximum value SCI is above 64.

(c) One of the two most recent BioRecon scores is ≤ 4.

(d) One of the two most recent Lake Vegetation Index scores is:

1. A score < 43; or

2. A 20 point reduction from the historic maximum value if the historic maximum value LVI is above 78.

(a) In streams, the bioassessment shall be either an SCI or a BioRecon. Failure of a bioassessment for streams consists of a “poor” or “very poor” rating on the Stream Condition Index, or a “fail” rating on the BioRecon.

(b) Failure for lakes consists of a “poor” or “very poor” rating on the Lake Condition Index.

The deleted portions of 62-303.330(3) that relate to the use of bioassessments, including BioRecon, was previously adopted by the State and approved by the EPA as a new/revised provision of Florida WQS on February 19, 2008. Because these provisions are being replaced with more specific biological health assessments, which are approved elsewhere in this current 303(c) review, the deletion of the older

bioassessment related text is consistent with 40 CFR Part 131 and the Clean Water Act and is approved by EPA pursuant to section 303(c) of the Act.

EPA has concluded to the extent that IWR provisions 62-303.330(3)(b) and (d) are used to establish the verified list, as referenced at 62-303.430(2)(a), (b), and (c), they constitute new or revised water quality standards because they establish or further define a magnitude for the new biological assessment criterion that the State uses when making attainment decisions to identify water quality-limited segments. With regard to 62-303.330(a) and (c), the provision regarding the Shannon-Weaver Diversity Index merely provides for the continuing use of this previously-approved metric and does not establish a new magnitude and the provision for the BioRecon is used only for planning list purposes, and does not affect attainment decisions. Therefore, provisions 62-303.330(3)(a) and (c) were determined not to be new or revised water quality standards.

The revised water quality standards of subsection 62-303.330(3) establish the following new magnitudes: for the new SCI criterion, a score not less than 35 or no more than a 20 point reduction from the historic maximum if that historic maximum is above 64; and for the new LVI lake criterion, a score not less than 43 or no more than a 20 point reduction from the historic maximum if that historic maximum is above 78. These new bioassessment tools establish quantitative “impairment thresholds” for both of these assessment methods. EPA reviewed the SCI score of 35 as part of its review of 62-302.531(2)(c). That review and EPA’s associated approval of 62-302.531(2)(c) as a new or revised WQS is discussed above on pages 29-43. EPA’s analysis of the historic maximum values for both SCI and LVI is discussed below in the review of 62-303.330(4). EPA’s analysis of the LVI score is discussed immediately below.

The development of the LVI threshold of impairment, a score of 43 is described on pages 33-34 in *FDEP. 2011. Development of Aquatic Life Use Support Attainment Thresholds for Florida’s SCA and LVI*. FDEP developed the LVI threshold using benchmark sites (Note: these sites were referred to as reference waters and benchmark sites interchangeably by FDEP). In general, the threshold was determined by using the 2.5th percentile of reference values of these lakes. The document provided a list of these lakes that have replicate LVI data. FDEP also convened a panel of experts consisting of 20 plant ecologists, botanists, and field lake managers, all with at least five years of experience, to help calibrate the LVI with the biological condition gradient (BCG). The U.S. EPA has outlined a tiered system of aquatic life use designation, along a Biological Condition Gradient (BCG), that illustrates how ecological attributes change in response to increasing levels of human disturbance. The BCG is a conceptual model that assigns the relative health of aquatic communities into one of six categories, from natural to severely changed. It is based in fundamental ecological principles and has been extensively verified by aquatic biologists throughout the U.S. (Use of Biological Information to Better Define Designated Aquatic Life Uses in State and Tribal WQS: Tiered Aquatic Life Uses (EPA-822-R-05-001)). Although there appeared to be a wide range of opinions of where to place various LVI scores on the BCG, FDEP took the responses and, based on statistical analyses of the workshop results, determined that a BCG score of 4 was the threshold of attainment and a LVI score of 44.8 represented the lowest threshold of attainment score LVI (based on the 2007 recalibrated LVI). To determine the relationship between the 2011 LVI scores with the same scores used for the 2007 Biological Condition Gradient (BCG) workshop, the LVI scores used for the BCG workshop were recalculated as described above and regressed against the 2007 BCG scores (Figure 24). After the 2011 recalculations, the same BCG score (4) was now equivalent to an LVI score of 42.3. This reduction of 2.5 points for an equivalent score means that the minimum threshold for meeting a healthy, well balanced plant community should be

adjusted by 2.5 points, and that the new acceptable LVI score, based on the BCG approach, would be 42.3. This is just slightly lower than the reference site threshold of 43 points. This discussion was included on pages 35-37 of *FDEP. 2011. Development of Aquatic Life Use Support Attainment Thresholds for Florida's SCA and LVI*.

These methods are appropriate for Florida waters and aquatic species because the ratings/scores generated using these assessments are an accurate and scientifically defensible measurement of designated use attainment in State waters. The water quality standards changes in 62-303.330(3) are consistent with 40 CFR Part 131 and the Clean Water Act and are approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.330(4)

(4) The “historic maximum value” shall be the highest mean of any three consecutive, temporally independent Stream Condition Index (SCI) scores or Lake Vegetation Index (LVI) scores at the same location that are collected prior to the most recent sample being considered for evaluation with this provision. To qualify as temporally independent samples, each Biological Health Assessment shall be conducted at least three months apart. Biological Health Assessments collected at the same water segment less than three months apart shall be considered one sample, with the mean value used to represent the sampling period.

The first sentence of this subsection defines the term “historic maximum value,” which is used as a baseline to assess SCI and LVI scores, at sites with high quality biological condition, as part of the verified list at subsections 62-303.430(2)(b) & (c). The definition affects the application of the criteria based on a change from the historic maximum value and therefore constitutes a new or revised water quality standard.

The addition of the term “historic maximum value” provides a baseline to assess SCI and LVI scores at sites with high quality biological conditions. The definition provides a process for calculating this value, which is scientifically sound in that it accounts for the temporal variability of the SCI and LVI. This provision is consistent with 40 CFR Part 131 and the Clean Water Act and this provision is approved by EPA pursuant to section 303(c) of the Act.

The term “historic maximum value” is also used in 62-303.330(3)(b)2 and 62-303.330(3)(d)2, but as used in those provisions does not constitute a new or revised water quality standard because it is a planning list provision only. The remaining two sentences of 62-303.330(4) establish the expectation for sampling at temporally independent times.⁶⁵ Because these last two sentences do not modify the underlying criteria in other provisions, the last two sentences are not new or revised water quality standards.

Subsection 62-303.390(2)(b)

(2) A Class I, II, or III water shall be placed on the study list if:

⁶⁵ A parallel provision to 62-303.330(4) is found at 62-302.531(5).

(b) A waterbody segment does not achieve the Biological Health Assessment provisions in Rule 62-303.430, F.A.C., but a cause has not been identified;

Subsection 62-303.390(2)(b) describes the process for determining whether a waterbody goes on the study or verified list section of the state's section 303(d) list. Since the provision relates to an attainment decision that has already been made that the waterbody is biologically impaired, this revision was determined not to be a new or revised water quality standard.

Subsection 62-303.430(1)

(1) All Biological Health Assessments ~~bioassessments~~ used to list a water on the verified list shall be conducted and interpreted in accordance with Chapter 62-160, F.A.C., including Department-approved Standard Operating Procedures and the Department documents, *Sampling and Use of the Stream Condition Index (SCI) for Assessing Flowing Waters: A Primer* (DEP-SAS-001/11), which was incorporated by reference in subsection 62-303.200(29), F.A.C., and *Sampling and Use of the Lake Vegetation Index (LVI) for Assessing Lake Plant Communities in Florida: A Primer* (DEP-SAS-002/11), which was incorporated by reference in subsection 62-303.200(9), F.A.C. To be used for placing waters on the verified list, any Biological Health Assessments ~~bioassessments~~ conducted before the adoption of applicable SOPs for such Biological Health Assessments ~~bioassessments~~ as part of Chapter 62-160, F.A.C., shall substantially comply with the subsequent SOPs. Biological Health Assessments conducted during conditions inconsistent with the applicable primer shall be excluded from the assessment.

Although 62-303.430(1) was determined to be a new or revised water quality standard in EPA's February 19, 2008 action, EPA has determined that as revised, subsection 62-303.430(1) simply restates the provisions EPA has approved in subsection 62-302.200(4) and, therefore, does not constitute a new or revised WQS. This provision also references two documents, *Sampling and Use of the Stream Condition Index (SCI) for Assessing Flowing Waters: A Primer* (DEP-SAS-001/11) and *Sampling and Use of the Lake Vegetation Index (LVI) for Assessing Lake Plant Communities in Florida: A Primer* (the LVI Primer), which contain the information on how to complete the steps that are necessary to conduct the SCI and the LVI, respectively. Except where stated otherwise in this document with regard to EPA's review of 62-302.531(2)(c), these documents are not new or revised WQS for the purposes of EPA's CWA section 303(c) review, since they only contain the details of analytical procedures that are used to calculate the SCI and LVI.

Subsection 62-303.430(2)

(2) If the water was listed on the planning list based on Biological Health Assessment ~~bioassessment~~ results, the water shall be determined to be biologically impaired if any of the following conditions occur:

(a) The average score of at least two temporally independent Biological Health Assessments is below 40 for the SCI or if either of the two most recent SCI scores is less than 35, or 43 for the LVI. If there are only two Biological Health Assessments and the difference between the two scores is greater than 20 points, then an additional SCI or LVI shall be required and the average of all three scores shall be used.

(b) The historic maximum SCI value, as defined in subsection 62-303.330(4), F.A.C., is above 64 and the average of the two most recent independent SCI scores is 20 or more points below the historic maximum value.

(c) The historic maximum value LVI, as defined in subsection 62-303.330(4), F.A.C., is above 78 and the average of the two most recent independent LVI scores is 20 or more points below the historic maximum value. ~~there were two or more failed bioassessments within the five years preceding the planning list assessment. If there were less than two failed bioassessments during the last five years preceding the planning list assessment, the Department will conduct an additional bioassessment. If the previous failed bioassessment was a BioRecon, then an SCI will be conducted. Failure of this additional bioassessment shall constitute verification that the water is biologically impaired.~~

(d) The average score of at least two temporally independent Shannon-Weaver Diversity Indices is less than 75 percent of the average score from an appropriate control site, pursuant to subsection 62-302.530(10), F.A.C.

The deleted portions of 62-303.430(2) that relate to the use of bioassessments reflect revisions associated with the replacement of more specific biological health assessments. Therefore, the deletion of the older bioassessment related text is consistent with 40 CFR Part 131 and the Clean Water Act and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.430(2) now establishes specific biological health assessment expectations as a means of placing waters on the verified list. These new indices establish quantitative “impairment thresholds” for each biological health assessment method against which the State can assess decreasing quality against. Therefore, this subsection is a new or revised water quality standard.

These methods are appropriate for Florida waters and aquatic species because the ratings/scores generated using these assessments are an accurate and scientifically defensible measurement of designated use attainment in State waters. The biological health assessment scores, previously described in other sections of this document in EPA’s review of 62-302.531(2)(c) and 62-303.330(3) and 62-303.330(4), provide the review related to the LVI and SCI, and the associated historic maximum values. Florida elects to place waters on the verified list based on two or more failed bioassessments in this circumstance because of the potential variability associated with biological sampling. Subsection 62-303.430(2) is consistent with 40 CFR Part 131 and the Clean Water Act and this provision is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.430(3)

(3) If the water was listed on the planning list based on BioRecon data, two or more temporally independent SCIs shall be conducted. ~~If the water segment was listed on the planning list based on other information specified in subsection rule 62-303.330(5)(4), F.A.C., indicating biological impairment, two or more temporally independent Biological Health Assessments appropriate for the~~

~~waterbody type shall be conducted the Department will conduct a bioassessment in the waterbody segment, conducted in accordance with the methodology in Rule 62-303.330, F.A.C., to verify whether the water is impaired. If available, the Department shall consider other scientifically credible biological assessment methods in predominantly marine waters to verify that the water is biologically impaired. Results from these biological assessments shall be evaluated in accordance~~

with subsection 62-303.430(2), F.A.C., as applicable. For streams, the bioassessment shall be an SCI. Failure of this bioassessment shall constitute verification that the water is biologically impaired.

The deleted portions of 62-303.430(3) that relate to the use of bioassessments reflect revisions associated with the replacement of more specific biological health assessments. Therefore, the deletion of the older bioassessment related text is consistent with 40 CFR Part 131 and the Clean Water Act and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.430(3) establishes which specific biological health assessment should be used when the water was placed on the planning list for not having an acceptable BioRecon assessment or based on other information specified in 62-303.330(5). Furthermore, when these other assessments are conducted, the threshold associated with the respective index is expected to be evaluated consistent with 62-303.430(2). Lastly, the State has specified that “other scientifically credible biological assessment methods” shall be considered for predominantly marine waters. These revisions set processes and thresholds for attainment decisions made by the State. Therefore, this entire subsection is a new or revised water quality standard.

These revisions clarify the processes and associated thresholds for attainment decisions made by the State. Subsection 62-303.430(3) is consistent with 40 CFR Part 131 and the Clean Water Act and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.430(4)

(4) If a waterbody was listed on the planning list based on failure of the Shannon-Weaver Diversity Index under subsection 62-302.530(10), F.A.C., a minimum of two Biological Health Assessments shall be conducted in accordance with the methodology in Rule 62-303.330, F.A.C., to verify whether the water is impaired. If an SCI or LVI is not applicable for the waterbody type, then the Biological Health Assessment shall be the Shannon-Weaver Diversity Index or other scientifically credible method.

Subsection 62-303.430(4) establishes that either an LVI or SCI should be used to verify biological impairment when the water was placed on the planning list for not having acceptable Shannon-Weaver Diversity Index scores. However if the LVI or SCI are not applicable for the waterbody type, then the Shannon-Weaver Diversity Index or “other scientifically credible method” shall be used. These revisions set processes and associated thresholds for attainment decisions made by the State. The Shannon-Weaver diversity was approved by EPA as a water quality standard in April 2003. This revision does not modify the previously approved standard; it merely describes its use in the absence of other information.

These revisions clarify the processes and associated thresholds for attainment decisions made by the State. Subsection 62-303.430(4) is consistent with 40 CFR Part 131 and the Clean Water Act and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.430(5)

(5) (4) Following verification that a waterbody is biologically impaired, a waterbody ~~water~~ shall be included on the verified list for biological impairment if:

(a) through (b)1. No change.

2. If there is not a numeric criterion for the specified pollutant(s) in Chapter 62-302, F.A.C., an identification of the specific factors that reasonably demonstrate how the particular pollutant(s) are associated with the observed biological effect. If the numeric interpretation of the narrative nutrient criterion in paragraph 62-302.531(2)(c), F.A.C., is exceeded, then nutrients shall be identified as the causative pollutant unless a stressor identification study links the adverse biological effects to causal factor(s) other than nutrients.

Subsection 62-303.430(5) describes the method to link a causal pollutant to the observed biological effects for determining 303(d) listing. Since the provision relates to an attainment decision that has already been made that the waterbody is biologically impaired, the additional language in this revision relating to determining or identifying the causative pollutant was determined not to be a new or revised water quality standard.

Subsection 62-303.430(6)

(6) If a waterbody is verified as biologically impaired, but a causative pollutant has not been identified, the waterbody shall be included on the study list.

Subsection 62-303.430(6) provides that a waterbody that is verified as biologically impaired will be included on the the study list portion of the state section 303(d) list, rather than the verified list portion, when a causative pollutant for the biological impairment has not been identified. This provision does not change whether a waterbody will be identified as impaired based on the biological attainment decision but clarifies where the waterbody will be listed on the state section 303(d) list, based on information about causation. Because this provision does not affect an attainment decision, EPA has determined subsection 62-303.430(6) does not constitute a new or revised water quality standard.

Nutrient Assessment Provisions

In addition to those provisions that EPA has determined to be new or revised water quality standards, Chapter 62-303 sections .350, .351, .352, .353, .354, .390, and .450 establish a number of other provisions that EPA has determined not to be new or revised standards. Those provisions associated with assessing specific waterbody types that EPA determined are not new or revised water quality standards are discussed by waterbody type below.

Before describing the nutrient assessment decisions by waterbody type, it is important to describe the listing process more generally. In Chapter 62-303 sections .350, .351, .352, .353, .354, .390, and .450 of the IWR, the State established a process for considering different amounts and types of information when making attainment decisions based on nutrients. As set out more fully below, waters will be included as water quality limited segments (WQLSs) on the study or verified list, or identified as potential problems requiring additional study on the planning list, based on the State's level of certainty of nutrient impairment.

The streams nutrient criteria established in 62-302 requires a suite of information to determine that a waterbody is definitively meeting its designated use. Where the State has sufficient information to determine that a waterbody is not meeting its designated use according to one of the four verified list bases set out below, the waterbody is identified as impaired on the verified list section of the State's 303(d) list. Where the available information indicates that a waterbody is not meeting its designated use according to one of the two study list bases set out below, but additional information could clarify whether the use is in fact impaired, the waterbody is identified as impaired on the study list section of the State's 303(d) list. Where the available information indicates that a waterbody might not be meeting its designated use according to one of the three planning list bases set out below, but additional information is necessary to determine whether the use is actually impaired, the waterbody is included on the planning list, which is not part of the State's section 303(d) list.

The following outline shows how the three lists address nutrient assessments for streams, based on varying levels of available information.

Verified List (303d list)

Streams will be placed on the Verified List for nutrient impairment based on any of the following scenarios:

1. Exceeding chlorophyll *a* thresholds more than once in three consecutive years, considering verified list data requirements, or
2. Information on chlorophyll *a* levels, algal mats or blooms, nuisance macrophyte growth, or changes in algal species composition indicates there are imbalances in flora or fauna, or
3. The average score of at least two temporally independent SCIs performed at representative locations and times is less than 40, with neither of the two most recent SCI scores less than 35⁶⁶, or
4. Adverse trend in response variables, where impairment is expected within 5 years.

Study List (303d list)

Streams will be placed on the Study List for nutrient impairment based on either of the following scenarios:

1. Exceeding nutrient thresholds, considering study list data requirements, where there is insufficient information to assess biology, or
2. Adverse trend in TN, TP, nitrate-nitrite, or chlorophyll *a* where impairment is expected within 10 years.

Planning List (not included on State 303d list)

Streams will be placed on the Planning List for nutrient impairment based on any of the following scenarios:

⁶⁶ Where a waterbody has two SCI scores averaging less than 40 but does not exceed the nutrient thresholds, the waterbody is included on the Study List for biological impairment. FDEP will then do a stressor identification study to determine the cause of the biological impairment.

1. Exceeding nutrient thresholds, considering planning list data requirement, where there is insufficient information to assess biology, or
2. Exceeding chlorophyll *a* thresholds, considering planning list data requirements, with no requirement for more than one exceedence in a three year period, or
3. Adverse trend in TN, TP, nitrate-nitrite, or chlorophyll *a*, with no projected impaired date required.

General Nutrient Assessment Provisions

Rule 62-303.350

(1) The nutrient impairment thresholds identified in Rules 62-303.351 through 62-303.354, F.A.C., Trophic state indices (TSIs) and annual mean chlorophyll *a* values shall be the primary means for assessing whether a water should be assessed further for nutrient impairment. Other information indicating an imbalance in flora or fauna due to nutrient enrichment, such as including, but not limited to, algal blooms or mats, excessive nuisance macrophyte growth, decrease in the distribution (either in density or areal coverage) of submerged aquatic vegetation, adverse changes in algal species composition richness, and excessive diel oxygen swings, shall also be considered for placing waters on the planning list.

(2) To be used to determine whether a waterbody should be assessed further for nutrient enrichment,

(a) Data must meet the requirements of subsections (2)-(4), (7), and (8) in Rule 62-303.320, F.A.C.;

(b) To calculate an annual geometric mean for TN, TP or chlorophyll *a*, there shall be at least four temporally-independent samples per year with at least one sample collected between May 1 and September 30 and at least one sample collected during the other months of the calendar year. To be treated as temporally-independent, samples must be collected at least one week apart; and At least one sample from each season shall be required in any given year to calculate a Trophic State Index (TSI) or an annual mean chlorophyll *a* value for that year (for purposes of this chapter, the four seasons shall be January 1 through March 31, April 1 through June 30, July 1 through September 30, October 1 through December 31);

(c) If there are multiple chlorophyll *a* or TSI values within a season, the average value for that season shall be calculated from the individual values and the four quarterly values shall be averaged to calculate the annual mean for that calendar year;

(d) For data collected after the effective date of this rule, individual TSI values shall only be calculated when the nitrogen, phosphorus, and chlorophyll data were collected at the same time and location;

(e) If there are insufficient data used to calculate a TSI or an annual mean chlorophyll *a* value in the planning period, but there are data from at least four consecutive seasons, the mean TSI or mean chlorophyll *a* value for the consecutive seasons shall be used to assess the waterbody;

(f) There must be annual means from at least four years when evaluating the change in TSI over time pursuant to subsection 62-303.352(3), F.A.C., and

(g) To be assessed under this chapter rule, except for data used to establish historical chlorophyll *a* levels, chlorophyll *a* data shall be determined using Department-approved methods as measured according to the DEP document titled, "Applicability of Chlorophyll *a* Methods" (DEP-SAS-002/10), dated October 24, 2011, incorporated by reference herein. Copies of the chlorophyll *a* document may be obtained from the Department's internet site at <http://www.dep.state.fl.us/water/wqssp/swq-docs.htm> or by writing to the Florida Department of

Environmental Protection, Standards and Assessment Section, 2600 Blair Stone Road, MS 6511, Tallahassee, FL 32399-2400. Chlorophyll *a* data shall be corrected for or free from the interference of pheophytin. chlorophyll *a* data collected after the effective date of this rule shall be corrected chlorophyll *a*, except for data used to establish historical chlorophyll *a* levels. Corrected chlorophyll *a* is the calculated concentration of chlorophyll *a* remaining after the chlorophyll degradation product, pheophytin *a*, has been subtracted from the uncorrected chlorophyll *a* measurement.
(3) When comparing changes in chlorophyll *a* or TSI values to historical levels, historical levels shall be based on the lowest five year average for the period of record. To calculate a five year average, there must be annual means from at least three years of the five year period.

The only provisions of 62-303.350 that were determined to be new or revised water quality standards were two deletions: 1) deletion of paragraph (c) in subsection (2), as previously adopted, and 2) the deletion of subsection (3) as previously adopted. All other revisions to 62-303.350 were determined not to be new or revised water quality standards.

Paragraph 62-303.350(2)(c) [as previously adopted]

Because 62-303.350(2)(c) was previously determined to be a new or revised water quality standard, EPA reviewed the deletion of the paragraph. Old paragraph (c) references seasonal averaging and how those averages should be handled to calculate the annual mean. However, the State's 2011 rulemaking revisions no longer utilize the chlorophyll *a* and TSI information previously adopted by the State so this change is consistent with other revisions made to reflect newer scientific processes to be used by the State. Therefore, EPA is approving the deletions within this subsection pursuant to section 303(c) of the Act as consistent with other approval actions taken throughout this decision document.

Subsection 62-303.350(3) [as previously adopted]

Because 62-303.350(3) was previously determined to be a new or revised water quality standard, EPA will review the deletion of the subsection. Old subsection (3) established a magnitude component of a translator procedure for a narrative criterion that executes an attainment decision. As part of the State's 2011 rulemaking revisions, the State deleted its use of the TSI and the change in historical chlorophyll *a* level provisions, and replaced the provisions with other criteria, such as the trend provisions of Rule 62-303. Therefore, EPA is approving the deletions within this subsection pursuant to section 303(c) of the Act. EPA's review of the trend provisions, adopted as part of the State's 2011 rulemaking, is provided as part of the planning, study, and verified list provisions in Rule 62-303 and also in discussions of downstream protection starting on page 44.

Nutrient Assessment Provisions for Streams

Overview

As set out more fully below, EPA determined that the provisions of 62-303.351(3), (4), and (5) [except the phrase "over the planning period"], 62-303.390(2)(a), 62-303.450(1) and (4) constitute new or revised water quality standards. EPA determined that the provisions of 62-303.351(1), (2) and (5) [only the phrase "over the planning period"], 62-303.390(2)(e), and 62-303.450(3) do not constitute new or revised water quality standards.

Subsection 62-303.351(1)

A stream or stream segment shall be included on the planning list for nutrients if: ~~the following biological imbalances are observed:~~

(1) The applicable numeric interpretation of the narrative nutrient criterion established in subsection 62-302.531(2), F.A.C., is exceeded;

EPA has determined that while subsection 62-303.351(1) may affect attainment decisions pursuant to section 62-303.450, subsection 62-303.351(1) simply implements the new or revised water quality standards that EPA has approved in the corresponding parts of subsection 62-302.531(2) above, without modifying those provisions. Therefore, subsection 62-303.351(1) does not constitute a new or revised WQS.

Subsection 62-303.351(2)

A stream or stream segment shall be included on the planning list for nutrients if: ~~the following biological imbalances are observed:~~

(2) For streams meeting the definition in subsection 62-302.200(36), F.A.C., the nutrient thresholds in subparagraph 62-302.531(2)(c)2., F.A.C., are exceeded and insufficient Biological Health Assessment data are available to fully assess achievement of the nutrient provisions in subparagraph 62-302.531(2)(c)1., F.A.C.;

Subsection 62-303.351(2) does not affect an attainment decision pursuant to chapter 62-303. EPA has determined that subsection 62-303.351(2) is not a new or revised water quality standard.

Subsection 62-303.351(3)

A stream or stream segment shall be included on the planning list for nutrients if: ~~the following biological imbalances are observed:~~

(3) (4) Algal mats or blooms are present in sufficient quantities to pose a nuisance or hinder reproduction of a threatened or endangered species;

Subsection 62-303.351(3) has been amended to provide for consideration of whether algal blooms in streams, in addition to algal mats, create a problem for threatened or endangered species. This provision may affect attainment decisions pursuant to section 62-303.450 and provides additional clarification of the level of protection provided by FDEP's narrative nutrient criterion that is not provided in chapter 62-302. Therefore, EPA has determined that subsection 62-303.351(3) constitutes a new or revised water quality standard.

For the same reasons outlined in the more comprehensive addition of this text on page 106, the rationale for approval of 62-303.352(2), this provision is consistent with 40 CFR section 131.11(a)(1) as it expands the State's narrative nutrient criteria to contain sufficient parameters or constituents to further protect the designated uses of waters that contain listed species, and the EPA is approving this provision pursuant to section 303(c) of the Act.

Subsection 62-303.351(4)

A stream or stream segment shall be included on the planning list for nutrients if: ~~the following biological imbalances are observed:~~

~~(4) (2) Annual geometric mean chlorophyll a concentrations are greater than 20 ug/l; or if data indicate annual mean chlorophyll a values have increased by more than 50 percent over historical values for at least two consecutive years.~~

62-303.450 refers back to subsection 62-303.351(4), which does not restate a provision contained in 62-302. Therefore, this provision affects an attainment decision and EPA determined that this provision is a new or revised water quality standards.

In EPA's review of the 2007 amendments to the IWR, EPA approved the chlorophyll a level of 20 µg/L for streams, calculated as an annual mean, as a "one-sided" WQS. EPA concluded in its February 19, 2008 decision that the adopted level reflected an impaired status and it was unknown what levels below that threshold were protective. The addition of the modifier "geometric" serves to clarify the type of average utilized for this metric. EPA discusses the rationale for using the geometric mean as a nutrient criteria duration in the preamble to the December 2010 final rule (page 75776). FDEP also discusses this issue in its Technical Support Document for Lakes, Spring Vents and Streams (page 201).

The State also deleted the part of subsection 62-303.351(4) that required an analysis of increases in ambient chlorophyll a levels over historical levels. FDEP has replaced criteria based on increases over historical levels with the chlorophyll a criteria established at 62-302.531(2)(b)1 and 62-302.531(2)(c). Increasing trends of chlorophyll a, in relation to those criteria, are addressed in the discussion of the trend analysis provisions starting on page 48.

Subsection 62-303.351(4) is consistent with 40 CFR section 131.11(a)(1) and section 303(c) of the Act and EPA is approving this subsection as a new or revised water quality standard.

Subsection 62-303.351(5)

A stream or stream segment shall be included on the planning list for nutrients if: ~~the following biological imbalances are observed:~~

(5) There is a statistically significant increasing trend in the annual geometric means at the 95 percent confidence level in TN, TP or chlorophyll a over the planning period using a Mann's one-sided, upper-tail test for trend, as described in Nonparametric Statistical Methods by M. Hollander and D. Wolfe (1999 ed.), pages 376 and 724, which are incorporated by reference herein. Copies of these pages may be obtained from the Department's internet site at <http://www.dep.state.fl.us/water/wqssp/swq-docs.htm> or by writing to the Florida Department of Environmental Protection, Standards and Assessment Section, 2600 Blair Stone Road, MS 6511, Tallahassee, FL 32399-2400.

Paragraph 62-303.390(2)(a) refers back to this provision when assessing waters for an increasing trend in TN, TP or chlorophyll a. Paragraph 62-303.390(2)(a) does not rely on the thresholds established in subsection 62-303.351(5) to affect an attainment decision. However, subsection 62-303.351(5) also specifies that Mann's one-sided, upper-tail test for trend must be used to demonstrate an increasing trend. Because subsection 62-303.351(5) affects an attainment decision by specifying the applicable

analytical method to be used in that assessment, this provision is a new or revised WQS that is subject to EPA's review under CWA section 303(c) authorities.

A detailed discussion of the trend analysis is set out beginning on page 48 above, as part of the discussion of the downstream protection provisions established at subsection 62-302.531(4). For the reasons outlined in that discussion, subsection 62-303.351(5), with the exception of the phrase "over the planning period," is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

As discussed more fully on page 83 above, EPA has further determined that the phrase "over the planning period," which establishes an age window for consideration of data under subsection 62-303.351(5), is not a water quality standard but is an assessment methodology for purposes of identifying water quality limited segments.

Paragraph 62-303.390(2)(a)

(2) A Class I, II, or III water shall be placed on the study list if:

(a) For waters with a statistically-significant increasing trend in TN, TP, nitrate-nitrite, or chlorophyll *a* pursuant to subsections 62-303.351(5), 62-303.352(3), 62-303.353(4), or 62-303.354(3), F.A.C., the Department confirms there is:

1. A statistically-significant (at the 95 percent confidence level) temporal trend in the annual geometric means after controlling for or removing the effects of confounding variables, such as climatic and hydrologic cycles, seasonality, quality assurance issues, and changes in analytical methods or method detection limits; and

2. A reasonable expectation that the water will become impaired within 10 years, taking into consideration the current concentrations of nutrients or nutrient response variables and the slope of the trend.

Paragraph 62-303.390(2)(a) requires that waters be included on the study list based on a demonstration of an increasing trend in TN, TP, nitrate-nitrite, or chlorophyll *a*, where that trend is statistically significant and there is a reasonable expectation that the water will be become impaired within ten years. This provision affects an attainment decision and establishes a level of protection to be used in making that attainment decision. Therefore, EPA has determined that this provision is a new or revised water quality standards.

A detailed discussion of the trend analysis is set out beginning on page 48 above, as part of the discussion of the downstream protection provisions established at subsection 62-302.531(4). For the reasons outlined in that discussion, paragraph 62-303.390(2)(a) is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

Paragraph 62-303.390(2)(e)

(2) A Class I, II, or III water shall be placed on the study list if:

(e) For streams meeting the definition in subsection 62-302.200(36), F.A.C., the nutrient thresholds in subparagraph 62-302.531(2)(c)2., F.A.C., are exceeded based on data from the last 7.5 years and insufficient Biological Health Assessment, chlorophyll *a*, or other response variable data are available to fully assess achievement of the nutrient provisions in paragraph 62-302.531(2)(c),

F.A.C. A TMDL shall not be established for the waterbody prior to the collection of additional response variable data and the conclusion of the next assessment cycle.

Paragraph 62-303.390(2)(e) affects attainment decisions based on the nutrient thresholds that EPA has approved in subsection 62-302.531(2)(c) above. However, paragraph 62-303.390(2)(e) simply implements those nutrient thresholds without modifying the thresholds. Therefore, paragraph 62-303.390(2)(e) does not constitute a new or revised WQS.

As discussed more fully on page 83 above, EPA has further determined that the 7.5 year data window established in paragraph 62-303.390(2)(e) is not a water quality standard but is an assessment methodology for purposes of identifying water quality limited segments.

This provision is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.450(1)

(1) A stream or estuary ~~A water~~ shall be placed on the verified list for impairment due to nutrients if it exceeds the chlorophyll *a* thresholds in subsection 62-303.351(4), F.A.C., or subsection 62-303.353(1), F.A.C., more than once in any consecutive three year period, and there are sufficient data from the last 7.5 five years preceding the planning list assessment, combined with historical data (if needed to establish historical chlorophyll *a* levels or historical TSIs), to meet the data sufficiency requirements of subsection 62-303.350(2), F.A.C. If there are insufficient data, additional data shall be collected as needed to meet the requirements. Once these additional data are collected, the Department shall determine if there is sufficient information, including paleoecological data, to develop a site-specific chlorophyll *a* threshold that better reflects conditions beyond which an imbalance in flora or fauna occurs in the water segment. If there is sufficient information, the Department shall re-evaluate the data using the site-specific thresholds. If there is insufficient information, the Department shall re-evaluate the data using the thresholds provided in subsections Rules 62-303.351(4) and 62-303.353(1) -353, F.A.C., for streams, lakes, and estuaries and verify impairment if there is more than one exceedance in any consecutive three year period ; respectively. In any case, the Department shall limit its analysis to the use of data collected during the last 7.5 five years preceding the planning list assessment and the additional data collected in the second phase. If alternative thresholds are used for the analysis, the Department shall provide the thresholds for the record and document how the alternative threshold better represents conditions beyond which an imbalance in flora or fauna is expected to occur.

Subsection 62-303.450(1) revises the frequency of the chlorophyll *a* thresholds for streams in subsection 62-303.351(4) and estuaries in subsection 62-303.353(1) to allow one exceedance of the chlorophyll *a* concentration every three years.

As discussed more fully below, subsection 62-303.450(1) revises the one-sided impairment threshold of 20 µg/l chlorophyll *a* for streams, which is established in subsection 62-303.351(4). Subsection 62-303.450(1) also references subsection 62-303.353(1), which is not the provision which establishes the one-sided impairment threshold of 11 µg/l chlorophyll *a* for estuaries. Subsection 62-303.353(1) simply implements the new or revised water quality standards that EPA has approved in its review of the respective parts of subsection 62-302.532(1) above, without modifying those provisions. EPA notes that

FDEP apparently intended for this provision to cite subsection 62-303.353(2), which does refer to the estuarine impairment threshold, rather than 62-303.353(1). FDEP has noted this error on page 29 of FDEP's Q&A Document and states that the citation error will be corrected in the next state triennial review. EPA will review the corrected provision when it is submitted to EPA.

As to the revision to the frequency component in the chlorophyll a impairment threshold for streams, FDEP has provided an explanation for the one in three years exceedance frequency on page 27 of FDEP's Q&A Document. In addition FDEP has indicated in its Nutrient Standards Implementation Document that streams with chlorophyll a concentrations between 3.2 µg/L and 20 µg/L will be considered impaired or inconclusive for phytoplankton community health. Streams with inconclusive phytoplankton community health and with TN or TP concentrations above the thresholds established in paragraph 62-302.531(2)(c) will be placed on the study list. Subsection 62-303.450(1) is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.450(3)

(3) If the waterbody was listed on the planning list based on subsections 62-303.351(1), 62-303.352(1), 62-303.353(1), or 62-303.354(1), F.A.C., upon confirming the imbalance of flora or fauna based on the last 7.5 years of data, the Department shall place the waterbody on the verified list for exceedances of the narrative nutrient criteria in paragraph 62-302.530(47)(b), F.A.C.

Subsection 62-303.450(3) covers four waterbody types: streams, lakes, estuaries, and springs, providing that waterbodies exceeding the magnitude, duration, and frequency of the criteria established in Rule 62-302 and referenced in 62-303.351(1), .352(1), .353(1), and .354(1) will be placed on the verified list.

Subsection 62-303.450(3) is described in additional detail in FDEP's Nutrient Standards Implementation Document. In reference to the phrase "upon confirming the imbalance in flora or fauna based on the last 7.5 years of data," the State clarifies that the "only confirmation required is that nutrient criteria have been exceeded within the last 7.5 years, and no additional biological information is required." Implementation Document at page 24. This clarification makes it clear that 62-303.450(3) is specifically referencing the applicable total phosphorus, total nitrogen, chlorophyll a, and/or nitrate+nitrite concentrations contained in 62-302.531 and .532.

Since subsection 62-303.450(3) simply restates the requirements found at in rule 62-302.531 and .532, EPA has determined that subsection 62-303.450(3) does not constitute a new or revised water quality standard subject to EPA's review under CWA section 303(c). Also, as discussed more fully on page 83 above, EPA has further determined that the 7.5 year data window established in subsection 62-303.450(3) is not a water quality standard but is an assessment methodology for purposes of identifying water quality limited segments.

Subsection 62-303.450(4)

(4) If the waterbody was listed on the study list for an adverse trend in nutrient response variables pursuant to paragraph 62-303.390(2)(a), F.A.C., the Department shall analyze the potential risk of nonattainment of the narrative nutrient criteria at paragraph 62-302.530(47)(b), F.A.C. This analysis shall take into consideration the current concentrations of nutrient response variables, the slope of the trend, and the potential sources of nutrients (natural and anthropogenic). If there is a reasonable

expectation that the waterbody will become impaired within 5 years, the Department shall place the waterbody on the verified list to develop a TMDL that establishes a numeric interpretation pursuant to paragraph 62-302.531(2)(a), F.A.C.

Subsection 62-303.450(4) covers four waterbody types: streams, lakes, estuaries, and springs. Subsection 62-303.450(4) requires that waters be included on the verified list based on a demonstration of an increasing trend in chlorophyll a, where that trend is statistically significant and there is a reasonable expectation that the water will be become impaired within five years. This provision affects an attainment decision and establishes a level of protection to be used in making that attainment decision. Therefore, EPA has determined that subsection 62-303.450(4) is a new or revised water quality standard.

A detailed discussion of the trend analysis is set out beginning on page 48 above, as part of the discussion of the downstream protection provisions established at subsection 62-302.531(4). For the reasons outlined in that discussion, subsection 62-303.450(4) is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

Nutrient Assessment Provisions for Lakes

Overview

The provisions of 62-303.352(2) and (3) [except the phrase “over the planning period”], 62-303.390(2)(a), and 62-303.450(4) were determined to be new or revised water quality standards, but 62-303.352(1) and (3) [only the phrase “over the planning period”] and 62-303.450(3) were determined not to be new or revised water quality standards. Sections 62-303.390(2)(a) and 62-303.450(3) and (4) are discussed on pages 102-105.

Subsection 62-303.352(1)

Lakes or lake segments shall be included on the planning list for nutrients if:

(1) The numeric interpretation of the narrative nutrient criterion established in subsection 62-302.531(2), F.A.C., is exceeded; ~~For lakes with a mean color greater than 40 platinum cobalt units, the annual mean TSI for the lake exceeds 60, unless paleolimnological information indicates the lake was naturally greater than 60, or~~

Although 62-303.450 refers back to subsection 62-303.352(1), EPA has determined that subsection 62-303.352(1) simply implements the new or revised water quality standards that EPA has approved in its review of the respective parts of subsection 62-302.531(2) above, without modifying those provisions. This subsection also deletes use of the TSI as an assessment methodology, consistent with revisions to section 62-303.200. EPA’s review of FDEP’s deletion of the TSI and approval of that deletion as a new or revised WQS is discussed above. Therefore, subsection 62-303.352(1) does not constitute a new or revised WQS.

Subsection 62-303.352(2)

Lakes or lake segments shall be included on the planning list for nutrients if:

~~(2) Algal mats or blooms are present in sufficient quantities to pose a nuisance or hinder reproduction of a threatened or endangered species; or For lakes with a mean color less than or equal to 40 platinum-cobalt units, the annual mean TSI for the lake exceeds 40, unless paleolimnological information indicates the lake was naturally greater than 40, or~~

Subsection 62-303.352(2) has been amended to provide for consideration of whether algal mats or blooms in lakes create a problem for threatened or endangered species. This provision may affect attainment decisions pursuant to section 62-303.450 and provides additional clarification of the level of protection provided by FDEP's narrative nutrient criterion that is not provided in chapter 62-302. Therefore, EPA has determined that subsection 62-303.352(2) constitutes a new or revised water quality standard.

This provision provides for an aspect of protection of the State's narrative criteria for nutrients that is not part of Florida WQS in Chapter 62-302. Therefore, this provision affects a use attainment decision and EPA determined that this provision is a new or revised WQS.

This provision was revised to state that the presence of sufficient quantities of algal mats or blooms in freshwater lakes that pose a nuisance or hinder reproduction of a threatened or endangered species would require listing of an affected water body on the State's planning list for nutrients. This provision provides an aspect of protection of the State's narrative criteria for nutrients that is not part of Florida WQS in Chapter 62-302. The effects on listed species adopted in this provision - to "pose a nuisance or hinder reproduction" of listed species - are similar to the definition of "take" in section 3(19) of the Endangered Species Act (ESA), which is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The protection of federally listed species is not required in the adoption of state WQS, but such explicit protections adopted by a state facilitate the EPA's ESA section 7 consultations on EPA's CWA section 303(c) review of state-adopted WQS. This provision is consistent with 40 CFR section 131.11(a)(1) as it expands the State's narrative nutrient criteria to contain sufficient parameters or constituents to protect the designated uses of waters that contain listed species, and the EPA is approving this provision pursuant to section 303(c) of the Act.

This subsection also deletes use of the TSI as an assessment methodology, consistent with revisions to section 62-303.200, as discussed above.

Subsection 62-303.352(3)

Lakes or lake segments shall be included on the planning list for nutrients if:

~~(3) There is a statistically significant increasing trend in the annual geometric means at the 95 percent confidence level in TN, TP, or chlorophyll *a* over the planning period using a Mann's one-sided, upper-tail test for trend, as described in Nonparametric Statistical Methods by M. Hollander and D. Wolfe (1999 ed.), pages 376 and 724, which were incorporated by reference in subsection 62-303.351, F.A.C. For any lake, data indicate that annual mean TSIs have increased over the assessment period, as indicated by a positive slope in the means plotted versus time, or the annual mean TSI has increased by more than 10 units over historical values. When evaluating the slope of mean TSIs over time, the Department shall require at least a five-unit increase in TSI over the assessment period and use a Mann's one-sided, upper-tail test for trend, as described in Nonparametric Statistical Methods by M. Hollander and D. Wolfe (1999 ed.), pages 376 and 724 (which are incorporated by reference), with a 95 percent confidence level.~~

Paragraph 62-303.390(2)(a) refers back to this provision when assessing waters for an increasing trend in TN, TP or chlorophyll *a*. Paragraph 62-303.390(2)(a) does not rely on the thresholds established in subsection 62-303.352(3) to affect an attainment decision. However, subsection 62-303.352(3) also specifies that Mann's one-sided, upper-tail test for trend must be used to demonstrate an increasing trend. Because subsection 62-303.352(3) affects an attainment decision by specifying the applicable analytical method to be used in that assessment, this provision is a new or revised WQS that is subject to EPA's review under CWA section 303(c) authorities.

Similar to the deletion of the TSI provisions in subsections 62-303.352(1) and (2), the TSI increasing trend test was deleted from this provision, which is consistent with the State's deletion of the use of the TSI in Rule 62-303.

A detailed discussion of the trend analysis is set out beginning on page 48 above, as part of the discussion of the downstream protection provisions established at subsection 62-302.531(4). For the reasons outlined in that discussion, paragraph 62-303.352(3), with the exception of the phrase "over the planning period," is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

As discussed more fully on page 83 above, EPA has further determined that the phrase "over the planning period," which establishes an age window for consideration of data under subsection 62-303.352(3), is not a water quality standard but is an assessment methodology for purposes of identifying water quality limited segments.

Nutrient Assessment Provisions for Estuaries

Overview

The provisions of 62-303.353(2), (3), and (4) [except the phrase "over the planning period"], 62-303.390(2)(a), 62-303.450(1) and (4) were determined to be new or revised water quality standards, but 62-303.353(1) and (4) [only the phrase "over the planning period"] was determined not to be a change to water quality standards. Subsections 62-303.390(2)(a) and 62-303.450(1), (3), and (4) are discussed on pages 102-105.

Rationale for Conclusion of WQS and non-WQS

Subsection 62-303.353(1)

Estuaries, estuary segments, or open coastal waters shall be included on the planning list for nutrients if:

(1) The numeric interpretation of the narrative nutrient criterion established in subsection 62-302.531(2), F.A.C., is exceeded;

Although rule 62-303.450 refers back to subsection 62-303.353(1), EPA has determined that subsection 62-303.353(1) simply implements the new or revised water quality standards that EPA has approved in its analysis of subsection 62-302.532(1) above, without modifying those provisions. Therefore, subsection 62-303.352(1) does not constitute a new or revised WQS.

Subsection 62-303.353(2)

Estuaries, estuary segments, or open coastal waters shall be included on the planning list for nutrients if:

(2) Their annual geometric mean chlorophyll *a* for any year is greater than 11 ug/l, or if data indicate annual mean chlorophyll *a* values have increased by more than 50 percent over historical values for at least two consecutive years.

Rule 62-303.390(2)(a) refers back to this provision, which does not restate a provision contained in 62-302. Therefore, subsection 62-303.353(2) affects an attainment decision, and EPA determined that this provision is a new or revised water quality standard.

In EPA's review of the 2007 amendments to the IWR, EPA approved the chlorophyll *a* level of 11 µg/L for estuaries, calculated as an annual mean, as a "one-sided" WQS. In EPA's February 2008 action on the IWR revisions, EPA concluded the adopted level reflected an impaired status and it was unknown what levels below that threshold were protective. The addition of the modifier "geometric" serves to clarify the type of average utilized for this metric. EPA discusses the rationale for using geometric mean as a nutrient criteria duration in the preamble to the December 2010 final rule. (Page 75776).

The State also deleted the part of subsection 62-303.353(2) that required an analysis of increases in ambient chlorophyll *a* levels over historical levels. FDEP has replaced criteria based on increases over historical levels with the chlorophyll *a* criteria established at 62-302.531(2)(b)1 and 62-302.531(2)(c). Increasing trends of chlorophyll *a*, in relation to those criteria, are addressed in the discussion of the trend analysis provisions starting on page 48.

Subsection 62-303.353(2) is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

Subsection 62-303.353(3)

Estuaries, estuary segments, or open coastal waters shall be included on the planning list for nutrients if:

(3) Algal mats or blooms are present in sufficient quantities to pose a nuisance or hinder reproduction of a threatened or endangered species

Subsection 62-303.353(3) provides for consideration of whether algal mats or blooms in estuaries create a problem for threatened or endangered species. This provision may affect attainment decisions pursuant to section 62-303.450 and provides additional clarification of the level of protection provided by FDEP's narrative nutrient criterion that is not provided in chapter 62-302. Therefore, EPA has determined that subsection 62-303.353(3) constitutes a new or revised water quality standard.

This provision provides an aspect of protection of the State's narrative criteria for nutrients that is not part of Florida WQS in Chapter 62-302. Therefore, this provision affects an attainment decision and EPA determined that this provision is a new or revised water quality standards.

For the same reasons outlined in the more comprehensive addition of this text on page 106, the rationale for approval of 62-303.352(2), this provision is consistent with 40 CFR section 131.11(a)(1) as it

expands the State's narrative nutrient criteria to contain sufficient parameters or constituents to further protect the designated uses of waters that contain listed species, and the EPA is approving this provision pursuant to section 303(c) of the Act.

Subsection 62-303.353(4)

Estuaries, estuary segments, or open coastal waters shall be included on the planning list for nutrients if:

(4) There is a statistically significant increasing trend in the annual geometric means at the 95 percent confidence level in TN, TP, or chlorophyll *a* over the planning period using a Mann's one-sided, upper-tail test for trend as described in Nonparametric Statistical Methods by M. Hollander and D. Wolfe (1999 ed.), pages 376 and 724, which were incorporated by reference in subsection 62-303.351(5), F.A.C.

Paragraph 62-303.390(2)(a) refers back to this provision when assessing waters for an increasing trend in TN, TP or chlorophyll *a*. Paragraph 62-303.390(2)(a) does not rely on the thresholds established in subsection 62-303.353(4) to affect an attainment decision. However, subsection 62-303.353(4) also specifies that Mann's one-sided, upper-tail test for trend must be used to demonstrate an increasing trend. Because subsection 62-303.353(4) affects an attainment decision by specifying the applicable analytical method to be used in that assessment, this provision is a new or revised WQS that is subject to EPA's review under CWA section 303(c) authorities.

A detailed discussion of the trend analysis is set out beginning on page 48 above, as part of the discussion of the downstream protection provisions established at subsection 62-302.531(4). For the reasons outlined in that discussion, subsection 62-303.353(4), with the exception of the phrase "over the planning period," is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

As discussed more fully on page 83 above, EPA has further determined that the phrase "over the planning period," which establishes an age window for consideration of data under subsection 62-303.353(4), is not a water quality standard but is an assessment methodology for purposes of identifying water quality limited segments.

Nutrient Assessment Provisions for Springs

Overview

The provisions of 62-303.354(3) [except the phrase "over the planning period"], 62-303.390(2)(a), and 62-303.450(4) were determined to be new or revised water quality standards, but 62-303.354(1), (2), and (3) [only the phrase "over the planning period"] were determined not to be new or revised water quality standards. Sections 62-303.390(2)(a) and 62-303.450 (3) and (4) are discussed on pages 102-105.

Rationale for Conclusion of WQS and non-WQS

Subsection 62-303.354(1)

A spring vent in predominantly fresh waters shall be included on the planning list for nitrate-nitrite if:

(1) The numeric interpretation of the narrative nutrient criterion established in subsection 62-302.531(2), F.A.C., is exceeded;

Although rule 62-303.450 refers back to subsection 62-303.354(1), EPA has determined that subsection 62-303.354(1) simply implements the new or revised water quality standards that EPA has approved in its analysis of the respective part of subsection 62-302.531(2)(b)2. above, without modifying those provisions. Therefore, subsection 62-303.354(1) does not constitute a new or revised WQS.

Subsection 62-303.354(2)

A spring vent in predominantly fresh waters shall be included on the planning list for nitrate-nitrite if:

(2) Algal mats or blooms are present in sufficient quantities to pose a nuisance or hinder reproduction of a threatened or endangered species;

Neither the study list or verified list provisions refer back to this provision and it does not modify any WQS in 302. Since this provision applies solely to the planning list and is not used in attainment decisions, EPA determined this provision is not a new or revised water quality standard.

Subsection 62-303.354(3)

A spring vent in predominantly fresh waters shall be included on the planning list for nitrate-nitrite if:

(3) There is a statistically significant increasing trend in the annual geometric means at the 95 percent confidence level in nitrate-nitrite over the planning period using a Mann's one-sided, upper-tail test for trend.

Paragraph 62-303.390(2)(a) refers back to this provision when assessing waters for an increasing trend in TN, TP or chlorophyll *a*. Paragraph 62-303.390(2)(a) does not rely on the thresholds established in subsection 62-303.354(34) to affect an attainment decision. However, subsection 62-303.353(4) also specifies that Mann's one-sided, upper-tail test for trend must be used to demonstrate an increasing trend. Because subsection 62-303.354(3) affects an attainment decision by specifying the applicable analytical method to be used in that assessment, this provision is a new or revised WQS that is subject to EPA's review under CWA section 303(c) authorities.

A detailed discussion of the trend analysis is set out beginning on page 48 above, as part of the discussion of the downstream protection provisions established at subsection 62-302.534(3). For the reasons outlined in that discussion, subsection 62-303.354(3), with the exception of the phrase "over the planning period," is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

As discussed more fully on page 83 above, EPA has further determined that the phrase "over the planning period," which establishes an age window for consideration of data under subsection 62-303.354(3), is not a water quality standard but is an assessment methodology for purposes of identifying water quality limited segments.

Revisions to 62-303.420

The majority of the changes to provisions in this section are in 62-303.420(1)(b). Other provisions included editorial revisions to the term “waterbody” or had no changes at all. These types of changes were not reviewed by the EPA. The revisions to 62-303.420(1)(b) are described below the specific text now adopted by the State.

(1)(b) If the Department has information suggesting that the values not meeting the dissolved oxygen (DO) criterion are due to natural background conditions, ~~including information about the in-stream concentrations of TN, TP, and BOD relative to comparable reference waters for waterbodies with values below the DO criterion,~~ it is the Department’s intent to support that conclusion through the use of Biological Health Assessments ~~bioassessment~~ procedures referenced in Rule 62-303.330, F.A.C. The waterbody ~~water-body~~ or segment shall not be included on the verified list for DO ~~the parameter of concern~~ if two or more temporally independent Biological Health Assessments ~~bioassessments~~ indicate the waterbody supports the protection and maintenance of a healthy, well-balanced population of fish and wildlife. ~~are conducted and no failures are reported.~~ In addition, the Biological Health Assessments shall be conducted in the same waterbody segment, or for streams, in the adjacent downstream waterbody segment where the water quality samples were taken. These Biological Health Assessments shall be conducted on the same day or after the water quality samples were collected. ~~To be treated as independent bioassessments, they must be conducted at least two months apart, within the assessed segment downstream of where the samples were measured, and after the samples were measured.~~

Subsection 62-303.420(1)(b) describes how FDEP will consider whether ambient DO values that do not meet the State’s water quality criterion are due to natural background conditions. The revisions to subsection 62-303.420(1)(b) do not modify the definition of natural background condition, found in section 62-302.200(19), including the requirement that man-induced alterations not cause or contribute to the values which are not meeting DO. Subsection 62-303.420(1)(b) no longer provides that FDEP’s conclusions may be supported by reference water information, and the revisions to this subsection incorporate the newly adopted Biological Health Assessments (BHAs) as support for FDEP’s conclusion that a waterbody should not be included on the verified list, pursuant to 62-303.330. EPA notes that the BHAs developed by FDEP are not intended to represent natural conditions, but are intended to act as thresholds of impairment, above which the State has determined that designated uses are supported. Since designated use support is not equivalent to a natural condition, the BHA values may not be used as the basis for FDEP’s conclusion that DO values are due to natural conditions. Rather, those scores may only be used as supporting information as to the relative health of the waterbody, as opposed to establishing whether the waterbody is affected by man-induced alterations. As provided on page 30 of FDEP’s Q&A Document, FDEP still plans to “document for the record the basis for its conclusion that the DO exceedances are due to natural background conditions, and this demonstration will include comparison of the waterbody’s nutrient and BOD levels to reference conditions and evaluation of potential anthropogenic sources of nutrients or BOD in the watershed.”

As applied in rules 62-302.200(19) and 62-303.420(1)(b) to interpret natural background for assessment purposes, and clarified above, this provision is protective of the designated use and is consistent with the requirements of 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

Revisions to 62-303.710

The only revision to this section was to add the following sentence:

(3) For waters impaired for dissolved oxygen, the Department shall identify the pollutants causing or contributing to the impairment and list both the pollutant and dissolved oxygen on the verified list. If the factor(s) causing the impairment cannot be identified, the water shall be placed on the study list.

Subsection 62-303.710(3) is administrative in nature and describes the methodology FDEP is to use to develop verified lists and what specific information verified lists should contain. Placing waters impaired for dissolved oxygen on the study list until the factor causing the impairment is identified does not establish a level of protection related to the magnitude, duration, or frequency of water quality criteria. By placing these waters on the study list, FDEP is recognizing that the waters are not attaining the state's dissolved oxygen criteria. EPA has concluded that IWR provision 62-303.710 does not constitute a new or revised water quality standard.

Revisions to 62-303.720

The majority of the substantive changes to provisions in this section are in 62-303.720(2). Other changes included editorial revisions to the term "water" or inclusion of references to the study list. These types of changes were not reviewed by the EPA. The revisions to 62-303.720(2) below provide the specific text now adopted by the State.

(2) Waterbody segments shall be removed from the State's verified list only after adoption completion of a TMDL, a Department determination that pollution control programs provide reasonable assurance that water quality standards will be attained pursuant to Rule 62-303.600 F.A.C., for all pollutants causing impairment of the segment or upon demonstration that the waterbody meets the water quality standard that was previously established as not being met.

(a) No change.

(b) For waters listed due to failure to meet aquatic life use support based on biological data, the waterbody shall be delisted when the two most recent independent Biological Health Assessments indicate the waterbody is no longer impaired pursuant to subsection 62-303.430(2), F.A.C. the segment passes two independent follow-up bioassessments and there have been no failed bioassessments for at least one year. The follow-up tests must meet the following requirements:

1. For streams, the new data must be ~~may be two BioRecons or any combination of BioRecons and SCIs unless the SCI is not appropriate for the waterbody type, in which case the new data shall consist of the Shannon-Weaver Diversity Index.~~

2. The Biological Health Assessments ~~bioassessments~~ must be conducted during similar conditions (same seasons and general flow conditions) under which the previous Biological Health Assessments ~~bioassessments~~ used to determine impairment were collected.

3. through (i) No change.

(j) For waters listed based on nutrient impairment, the waterbody shall be delisted if it does not meet the listing thresholds in Rule 62-303.450, F.A.C., for three consecutive years, or it is demonstrated to not exceed the narrative nutrient criteria at paragraph 62-302.530(47)(b), F.A.C., pursuant to the provisions of subsection 62-303.450(3), F.A.C.

(k) No change.

(l) For waters listed based on paragraph 62-303.420(7)(b), F.A.C., or subsection 62-303.470(3), F.A.C., the waterbody shall be delisted if the Department determines the waterbody is no longer impaired, based on scientifically credible and compelling information comparable in quantity and quality to the information used to make the initial listing decision. Any determinations to delist waters based on this provision shall be documented, and the documentation shall include the basis for the decision.

Table 4. No change.

(m) No change.

(n) For waterbodies listed on the verified list, the water shall be delisted from the verified list and added to the study list when subsequent analysis demonstrates that the cause of the impairment was incorrect or otherwise demonstrates that a TMDL is not appropriate.

Paragraphs 62-303.720(2)(b) and (j) were determined to be new or revised WQS, and the remainder of the revisions to Section 62-303.720 are not new or revised WQS.

EPA has concluded that the revisions to 62-303.720(2)(b) constitute new or revised WQS because they revise the process that the State may use to remove waters from the verified list and utilize biological assessment criteria contained in 62-303.430(2) to make delisting decisions for previous non-attainment decisions that identified water quality limited segments. This provision now allows the use of Biological Health Assessments, specifically the SCI or the Shannon-Weaver Diversity Index, to remove waters from the verified list. EPA discusses the SCI on pages 38-40 of this document and the Shannon-Weaver Diversity Index on page 91. The requirement that the two most recent independent Biological Health Assessments indicate the waterbody is no longer impaired is a reasonable and protective provision for removing a water from the verified list. The SCI and Shannon-Weaver Diversity Index are reasonable biological indices for this purpose.


Several of the deletions in 62-303-720(2)(b) remove more general language regarding the biological assessments, replaced the use of BioRecons with the SCI and replaced the term “bioassessment” with “Biological Health Assessment.” These changes result from the State’s adoption of new and revised specific biological assessment tools which will provide information regarding the condition of the water. An additional deletion removes the condition that there be no failed bioassessments for at least one year. The revised requirement regarding the two most recent biological assessments makes this condition unnecessary.

Therefore, these revisions to 62-303-720(2)(b) are consistent with 40 CFR Part 131 and the CWA and are approved by EPA pursuant to section 303(c) of the Act.

The revision to paragraph 62-303-720(2)(j) adds a provision that waters be delisted if they are demonstrated to not exceed the narrative nutrient criteria at paragraph 62-302.530(47)(b) pursuant to 62-303.450(3). EPA has concluded that the revision to provision 62-303.720(2)(j) constitutes a new or revised water quality standard because it further defines the use of biological assessment data in making delisting decisions for previous non-attainment decisions that identified water quality limited segments. This revision to 62-303-720(2)(b) is consistent with 40 CFR Part 131 and the CWA and is approved by EPA pursuant to section 303(c) of the Act.

NOV 30 2012

Date



James D. Giattina
Director, Water Management Division

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EPA Review of Development of Type III Site Specific Alternative Criteria for Nutrients

The document, *Development of Type III Site Specific Alternative Criteria for Nutrients*, FDEP Bureau of Assessment and Restoration Support, October 24, 2011, (SSAC Development Document) is referenced in 62-302.800(3)(a)2. and (3)(b) in Florida's Nutrient Rule:

62-302.800(3)(a)2. The Department shall establish a Type III SSAC if all of the following conditions are met: ... The petitioner provides sufficient data to characterize water quality conditions, including temporal variability, that are representative of the biological data used to support the SSAC. The water quality data shall be collected in the same waterbody segment as the biological monitoring stations and at a frequency and duration consistent with the study design concepts described in the document titled *Development of Type III Site Specific Alternative Criteria (SSAC) for Nutrients* (DEP-SAS-004/11), dated October 24, 2011, which is incorporated by reference herein.

62-302.800(3)(b) The SSAC shall be established at a level representative of nutrient loads or concentrations that have been demonstrated to be protective of the designated use by maintaining balance, natural populations of aquatic flora and fauna. This demonstration shall take into account natural variability by using statistical methods appropriate to the data set, as described in *Development of Type III Site Specific Alternative Criteria for Nutrients* (DEP-SAS-004/11).

The EPA reviewed the SSAC Development Document to determine whether any provisions in the document constitute new or revised water quality standards (WQS). Provisions that describe the sufficiency or reliability of information necessary to support the FDEP decisions are not WQS because they are not a designated use, do not establish a criterion, and do not modify the state's antidegradation policy. The EPA interprets Clean Water Act (CWA) section 303(c)(2)(A), and its implementing regulations at 40 C.F.R. Part 131, not to include such a provision as a WQS as that term is used in section 303(c)(2)(A) of the CWA and its implementing regulations at 40 C.F.R. §§ 131.3(b), 131.3(i), 131.5(a)(2), 131.6(c), 131.11, and 131.20. Unless otherwise stated, a provision of the SSAC Development Document is not a WQS that is subject to review by the EPA under its CWA section 303(c) authorities. However, each Type III SSAC adopted by the State in the future pursuant to the provisions of the SSAC Development Document will be reviewed by the EPA as a new or revised WQS under CWA § 303(c) authorities on the merits of the information and demonstrations required under 40 C.F.R. § 131.11.

The provisions of the SSAC Development Document (1) describe the types of data and information, as well as the sufficiency and reliability of the data and information that the FDEP needs to make a decision on a Type III SSAC pursuant to the Florida Nutrient Rule, (2) provide information on the applicability of quality assurance protocols and statistical considerations to ensure that a Type III SSAC is supported by sound science, (3) establish guidance for the derivation and expression of Type III SSAC, including the magnitude, duration and frequency components of a SSAC, and (4) include examples of analytical or assessment methodologies and other recommendations for developing Type III SSAC that can be used to comply with the regulatory requirements in the Rule. These provisions clarify the circumstances that must exist for the FDEP to make a SSAC decision in the first instance and

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contain policy choices about the types of data that are best suited for that purpose, and the reliability of those data.

Section 1 of the SSAC Development Document, entitled *Purpose of Document*, states that the purpose of the document is to “provide information about data requirements and studies needed to support the establishment of Type III SSAC for nutrients as described in Rule 62-302.800, Florida Administrative Code,” and also states that “the **guidance** provided in this document is also intended to ensure that data submitted to the DEP are consistent with the requirements of DEP rules.” (emphasis added)

Section 2.1 of the SSAC Document, entitled *SSAC Background*, restates the requirements of 62-302.800(3) for adoption of Type III SSAC, stating that a Type III SSAC must:

- Fully protect the designated use (pursuant to 62-302.800(3)(b));
- Demonstrate support of the narrative nutrient criterion in subparagraph 62-302.530(47)(b) (pursuant to 62-302.800(3)(a)1.);
- Be based on a sound, scientific rationale (pursuant to 62-302.800(3)(a) and (b)); and
- Protect downstream waters (pursuant to 62-302.800(3)(a)3.).

The provisions of Sections 1 and 2.1 are intended to provide clarification to the public about the regulatory provisions in Rules 62-302 and 62-303 that are discussed in the SSAC Document, and these provisions of the SSAC Document do not constitute new or revised WQS.

Section 2.2 of the SSAC Document, entitled *Study Design for Type III SSACs*, states that water chemistry, biological data and physical information are needed to evaluate whether a waterbody achieves the narrative criterion for nutrients. This section states, “Because of the complexity associated with nutrient enrichment effects, no single assessment tool is adequate to evaluate all potential impacts, and instead, a weight-of-evidence evaluation must be conducted.” This section also refers to another FDEP document, *Sampling and Use of the Stream Condition Index (SCI) for Assessing Flowing Waters: A Primer* (DEP-SAS-001/11). The EPA’s conclusions regarding that document are summarized in the EPA’s review of subsection 62-302.200(37) in the EPA’s Review of Amendments to Florida Rules 62-302 and 62-303.

Section 2.2 restates the requirements of 62-302.531(2)(c)1. and 2., which provide for interpretation of the narrative nutrient criterion using nutrient thresholds in conjunction with biological information. Section 2.2 also includes a discussion of the number of stations that should be sampled in the evaluation of a SSAC and states that SSAC may be established for multiple stream segments if those segments “have homogeneous nutrient concentrations.” These provisions of the SSAC Document do not provide additional regulatory detail beyond that included in the Rule. Such provisions are intended to provide clarification to the public about the regulatory provisions in Rules 62-302 and 62-303 that are discussed in the SSAC Document, and these provisions of the SSAC Document do not constitute new or revised WQS.

This section also restates the SCI sampling requirements of 62-302.800(3)(a)1.a.ii., and specifies that SCI assessment scores at the same location at an interval of less than three months apart “are considered to be one sample, with the mean value used to represent the sampling period.” Section 2.2 also provides clarification in regard to the water quality sampling required in a SSAC evaluation under 62 -

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303.800(3)(a)2, which states that a petitioner for a SSAC demonstration must provide “sufficient data to characterize water quality conditions, including temporal variability, that are representative of the biological data used to support the SSAC.” Section 2.2 requires that bioassessment data “must be collected within the same years as the water quality data that is used to establish the SSAC. Section 2.2 also includes other provisions that provide recommendations and guidance for conducting biological, water quality and physical assessments in support of a Type III SSAC, including choosing sampling sites that are representative of the stream segment, the sufficiency of water quality data (including frequency and duration of the sampling efforts), the location of sampling sites, and the exclusion of certain data during certain “extreme climatic or hydrologic conditions.” The guidance outlined in these provisions does not change or refine the requirements in 62-302.800(3) that a Type III SSAC must fully protect the designated use of the waterbody to which the SSAC applies and the waterbody achieves the narrative nutrient criterion in 62-302.530(4)(b), and do not establish or revise the magnitude, duration, or frequency of a water quality criterion. Rather, these provisions relate to the data distribution requirements or simply describe the sufficiency or reliability of data and information the FDEP needs to make these findings. Therefore, these provisions are not new or revised WQS for the purposes of the EPA’s CWA section 303(c) review.

Section 2.2 also restates the options available to a Type III SSAC petitioner to show that a Type III SSAC is protective of downstream waters. This section states that the first step that a petitioner should take in determining downstream protection is to review DEP’s website to determine if any downstream waters are on the State’s Verified List as impaired for nutrients, and states, “If the downstream waters attain water quality standards related to nutrient conditions, protection of downstream waters has been demonstrated.” Downstream nutrient standards include the water quality criteria established for these waters, as well as any other provisions of nutrient WQS that the EPA has determined to be a new or revised WQS pursuant to CWA section 303(c), e.g., WQS provisions of the increasing trend analyses in 62-303.351(5) 62-303.352(3), 62-303.353(4) and 62-303.354(3) for the Planning List, 62-303.390(2)(a) for the Study List, 62-303.450(4) for the Verified List which apply to the evaluation of increasing trends of ambient levels of chl a, TN, and TP, and to a lesser degree by the provisions of 62-303.330(3)(d)2., 62-303.430(2)(c) relating to evaluation of changes to LCI values.

If downstream waters are reported as not attaining nutrient standards, the petitioner must demonstrate:

... the nutrient levels established by the Type III SSAC, when delivered to downstream waters, either: a. meet the allocations of a downstream TMDL; or b. provide for the attainment and maintenance of water quality standards, using water quality models or other scientifically defensible methods.

This part of Section 2.2 does not provide any additional requirements or restrictions on how downstream WQS protection is demonstrated, and these provisions are not new or revised WQS for the purposes of the EPA’s CWA section 303(c) review.

Section 2.3 of the SSAC Development Document, entitled, *Statistical Consideration for Developing Type III SSACs*, provides guidance for data sufficiency requirements and for the derivation and expression of Type III SSAC, in relation to data variability and statistical analyses. Section 2.3 states:

When developing numeric criteria (NNC) to protect and maintain a healthy, well-balanced community, it is important to account for natural variability in both the nutrient regime and in the biological communities, as well as other influences on the ecosystem. Derivation of nutrient criteria must be based on a sound scientific rationale, which requires adherence to the DEP’s QA

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Rule (Chapter 62-160, F.A.A.) and identification of a reasonable ecological linkage between nutrients and protection of the designated use. The criteria should also account for and manage confounding factors during derivation, and control for Type I errors (incorrectly concluding that a system is healthy, when it is actually impaired [a “false negative”]). Statistical techniques should be selected to manage errors and explain variability.

Section 2.3 includes a discussion of these issues, stating that data should be collected to estimate the variability of nutrients and chlorophyll a levels, in order to sufficiently define the magnitude, frequency and duration of SSAC, and states:

For Type III SSACs, the magnitude shall be set at a level that maintains the current data distribution of a healthy existing condition, accounting for natural temporal variability. The magnitude component **can be** set maintain the long-term central tendency (e.g., geometric mean) of the distribution, while the frequency and duration components describe how often, and by how much, the nutrient concentrations can be above the central tendency while still being consistent with the baseline distribution. (emphasis added)

This section also includes the following list of factors to be considered in developing sufficient data in support of a Type III SSAC:

The quality of the data to be used;

The spatial and temporal variability of the water quality constituent;

Measurement errors associated with sampling and testing;

The appropriateness of statistical treatment of the data and the rationale for its selection, including the handling of values less than the detection limit (generally, one half the detection limits is a good estimate if detection limits are consistent); and

That data were collected at suitable sites and during appropriate conditions to evaluate the parameter of concern.

This section also discusses factors that affect the ability to accurately characterize a distribution of samples: sample size, variability, level of significance, power, and minimum detectable effect.

All of the above provisions of Section 2.3 describe the types of data and information, or the sufficiency or reliability of data and information, which can be used in derivation of a Type III SSAC for an individual waterbody, and do not constitute a new or revised WQS.

Section 2.3 also provides guidance regarding the application of statistical attributes of a data set in the establishment of the magnitude, frequency and duration of a Type III SSAC. This section discusses acceptable error rates which can be used to establish the magnitude of a Type III SSAC and acceptable excursion frequencies of a Type III SSAC. Although the State recommends the use of a 10% Type 1 error rate, Section 2.3 states “DEP will consider lower Type 1 errors on a case by case basis in situations when the variance of nutrient is well qualified, such as a long data record (e.g., monthly for 10 to 20 years) or when an independent variable (e.g., color, salinity) can be used to explain a large portion of the variability in the nutrient parameter ...”

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This section also discusses allowable excursion frequencies, stating “Although DEP will consider alternative frequency and duration expressions for SSACs, DEP recommends establishing alternative criteria at either the 80th or 90th percentile to be expressed as either an annual geometric mean not be exceeded more than one in a three-year period or more than once in a five-year period, respectively.” Table 2 of Section 2.3 is a list of percentile targets to achieve acceptable exceedance frequencies for annual geometric mean concentration assessment periods from three to five years that would be expected to have a Type 1 error rate of 10% or 5%. Therefore this section does not require expression of SSAC using a certain exceedance frequency.

Section 2.3 also states:

The statistical methods described in the previous paragraphs are approaches that DEP has used in the past to derive nutrient thresholds and are consistent with the methods used to develop the Nutrient Watershed Region Nutrient Thresholds in Rule 62-302.531, F.A.C. However, an entity has the option of petition for a SSAC derived using alternative statistical methods as long as the petition describes the statistical assumptions as well as how the proposed threshold is consistent with a Type 1 error rate of not greater than 10%.

Given the caveats regarding the use of alternative methods, and the range of choices in the expression of a SSAC, including DEP’s allowance of different Type 1 error rates “on a case by case basis,” the EPA has determined that these provisions of Section 2.3 are not WQS provisions, because they do not require that SSAC be expressed based on specific statistical attributes or a specific exceedance frequency.

Section 2.3 also discusses factors that relate to the sufficiency of data that can be used in the development of a Type III SSAC. For the reasons outlined above in the EPA’s review of Section 2.2, those provisions are not WQS that are subject to the EPA’s review authorities under CWA section 303(c).

Section 2.3 also includes a discussion of how these statistical considerations are applied through the use of equations and statistical techniques. This section also describes the acceptability of data that can be used in the statistical analysis. For example, on page 14:

This alternative is based on the logical argument that if concentrations during the SSAC study are protective of healthy biology and nutrient concentrations have not changed over the period of record, then the historic concentrations must have been protective of healthy biology. However, if nutrient concentrations have decreased and there are no biological data to demonstrate that the previous high nutrient levels were associated with healthy biology, it cannot be assumed that the waterbody supported healthy biology during the entire period of record. Consequently, the SSAC must be derived using only data from the study period.

These types of statements provide guidance on the type of data that can be used, but do not definitively establish qualifying criteria that must be used, to judge the acceptability of individual measurements in a Type III SSAC evaluation. These statements are not provisions that are subject to the EPA’s CWA section 303(c) review.

Section 3 of the Type III SSAC Development Document, entitled *Applicability of Quality Assurance (QA) to Type III SSACs*, includes a discussion of the sufficiency and reliability of data and staff qualification criteria that are needed to ensure the data for a waterbody under consideration for a Type

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III SSAC are appropriate for nutrient study objectives. Therefore, these provisions are not new or revised WQS for the purposes of the EPA's CWA section 303(c) review.

Section 4, entitled *Example Type III SSACs*, includes two examples that the State has determined would be appropriate for Type III SSAC. However, these examples do not establish any additional requirements or restrictions on the development of Type III SSAC, and do not provide additional regulatory detail beyond the WQS adopted in Rules 62-302 or 62-303, or provisions of the Type III SSAC Development Document that the EPA has determined to be WQS. This section is intended to provide clarification to the public about the regulatory provisions discussed, including providing examples of how the provisions could be implemented, and do not constitute a new or revised WQS.

Attachment B:
Table of New or Revised Water Quality Standards Associated with
EPA's November 30, 2012 Action

Topic	Sections Covered	Subsections Identified
Definitions	62-302.200 and 62-303.200	62-302.200(4), (16), (17), (19), (22), (23), (24), (25), (29), (30), (35), (36), and (37); 62-303.200(2), (8), (9)[deleted text only], (25), and (28)
Table of Surface Water Quality Criteria	62-302.530	No subsection given. Only the addition of the single sentence to this section was reviewed.
Hierarchy Structure and Details	62-302.531	62-302.531 (2)(a)1. & 2.
Lakes Criteria	62-302.531	62-302.531(2)(b)1.
Springs Criteria	62-302.531	62-302.531(2)(b)2.
Streams Criteria	62-302.531	62-302.531(2)(c)
Corrected Chlorophyll	62-302.531	62-302.531(3) [last sentence only]
Downstream Protection	62-302.531	62-302.531(4)
Spatial Expression	62-302.531	62-302.531(7)
Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criterion	62-302.532	62-302.532(1) and (2)
Site Specific Alternative Criteria	62-302.800	62-302.800(2)(d) and (3) [as specified on pages 77-82 of EPA's decision document associated with the November 30, 2012 action], and (6)
Biological Assessment	62-303.330	62-303.330(3)(b), (3)(d), (4) [first sentence only]
Assessments of Numeric Interpretations of Narrative Nutrient Criteria	62-303.350	Deleted 62-303.350(2)(c) and (3)
Biological Impairment	62-303.430	62-303.430(2) and (3)
Nutrient Assessment Provisions	62-303.351, 62-303.352, 62-303.353, 62-303.354, 62-303.390, 62-303.450	62-303.351(3), (4), and (5); 62-303.352(2) and (3); 62-303.353(2), (3), and (4); 62-303.354(3); 303.390(2)(b); 62-303.450(1) and (4)
Aquatic Life-Based Water Quality Criteria Assessment	62-303.420	62-303.420(1)(b)
Study List	62-303.390	62-303.390(2)(a)
Delisting Procedure	62-303.720	62-303.720(2)(b) and (2)(j)

**Attachment C:
Table of NON New or Revised Water Quality Standards**

Note: This list only includes provisions which were modified by the State within the regulations submitted to EPA for review, but were determined to not be new or revised water quality standards subject to section 303(c) review.

Topic	Sections Covered	Number of Subsections Identified
Definitions	62-302.200 and 62-303.200	62-302.200(39), (42), and the documents referenced within (17), (19), and (37); 62-303.200(1), (3), (7), (9)[added text only], (12), (13), (14), (17), (21), (22), (25), (27), (29), (30), (32), (35), and (36)
Numeric Interpretations of Narrative Nutrient Criteria	62-302.531	62-302.531(1), (3) [except for last sentence], (5), (6), (8), and (9)
Estuary-Specific Numeric Interpretations of the Narrative Nutrient Criterion	62-302.532	62-302.532(3)
Site Specific Alternative Criteria	62-302.800	62-302.800(2) and (3) [as specified on pages 77-82 of EPA's decision document associated with the November 30, 2012 action]
Relationship between Lists and Study List	62-303.150 62-303.390	62-303.150(1) and (2), 62-303.390(1), (2)(c) & (d), (3), (4), and (5)
Evaluation of Aquatic Life Use Support	62-303.310	62-303.310(2) and (3)
Biological Assessment Provisions	62-303.330 62-303.390	62-303.330(2), (3)(a) & (c), (4)[last two sentence only], and (5)
Nutrient Assessment Provisions	62-303.350, 62-303.351, 62-303.352, 62-303.353, 62-303.354, 62-303.450	62-303.350(2)(c) and (3) [as deleted]; 62-303.351(1) and (2); 62-303.352(1); 62-303.353(1); 62-303.354(1) and (2); 62-303.450(2), (3), (5), and (6)
Biological Impairment	62-303.430	62-303.430(1), (4), (5), and (6)

Attachment D : FWS-Specific Species List

KEY:

Green Highlights = Terrestrial

Yellow Highlights = Aquatic or Aquatic-Dependent, but not applicable to rule

Blue Highlights = Included in Action

Florida Species and Critical Habitat (information pulled from webpages for each Florida US FWS office)									
Individual Species	Critical Habitat (CH)	Aquatic Species	Aquatic Dependent	Not Aquatic or Aquatic Dependent	US FWS Regional Office			Notes	
					North Florida	South Florida	Panama City		
					X indicates which regional office(s)				
Mammals									
• Anastasia Island beach mouse (<i>Peromyscus polionotus phasma</i>)				X	X				
• Choctawhatchee beach mouse (<i>Peromyscus polionotus allophrys</i>)	Yes			X					
• Florida panther (<i>Puma (=Felis) concolor coryi</i>)				X	X		X, CH		
• Florida salt marsh vole (<i>Microtus pennsylvanicus dukecampbelli</i>)			X		X				
• Gray bat (<i>Myotis grisescens</i>)				X			X		
Gray wolf (<i>Canis lupus</i>)				X					
• Indiana bat (<i>Myotis sodalis</i>)				X			X		
• Key deer (<i>Odocoileus virginianus clavium</i>)				X		X			
• Key Largo cotton mouse (<i>Peromyscus gossypinus allapaticola</i>)				X		X			
• Key Largo woodrat (<i>Neotoma floridana smalli</i>)				X		X			
• Lower Keys rabbit (<i>Sylvilagus palustris hefneri</i>)				X		X			
Red wolf (<i>Canis rufus</i>)				X					
• Perdido Key beach mouse (<i>Peromyscus polionotus trissyllepsis</i>)	Yes			X			X, CH		

• Silver rice rat (<i>Oryzomys palustris natator</i>)	Yes					X			X, CH		
• Southeastern beach mouse (<i>Peromyscus polionotus niveiventris</i>)						X		X	X		
• St. Andrew beach mouse (<i>Peromyscus polionotus peninsularis</i>)	Yes					X				X, CH	
• West Indian manatee (Florida) (<i>Trichechus manatus</i>)	Yes	X					X	X, CH	X		

Birds

• Audubon's crested caracara (<i>Polyborus plancus audubonii</i>)					X	X	X	X			
• Bachman's warbler (<i>Vermivora bachmanii</i>)					X			X			
• Cape sable seaside sparrow (<i>Ammodramus maritimus mirabilis</i>)	Yes				X			X, CH			
• Everglade snail kite (<i>Rostrhamus sociabilis plumbeus</i>)	Yes			X			X	X, CH			
• Florida grasshopper sparrow (<i>Ammodramus savannarum floridanus</i>)					X	X		X			
• Florida scrub-jay (<i>Aphelocoma coerulescens</i>)					X		X	X			
Ivory-billed woodpecker								X			
Kirtland's wood warbler											
• Piping plover (<i>Charadrius melodus</i>)	Yes			X			X	X, CH	X, CH		
• Red-cockaded woodpecker (<i>Picoides borealis</i>)					X		X	X	X		
Red knot (<i>Calidris canutus</i>)					X					Candidate	
• Roseate tern (<i>Sterna dougallii dougallii</i>)					X			X			
• Whooping crane (<i>Grus americana</i>)					X			X			Experimental population
• Wood stork (<i>Mycteria americana</i>)				X			X	X	X		

Reptiles

• American crocodile (<i>Crocodylus acutus</i>)	Yes			X				X, CH			
• Atlantic salt marsh snake (<i>Nerodia clarkii taeniata</i>)				X			X	X			

[illegible]

• Purple bankclimber mussel (<i>Elliptioideus slootianus</i>)	Yes	X							X, CH	FW, not in S. FL
• Shinyrayed pocketbook mussel (<i>Lampsilis subangulata</i>)	Yes	X							X, CH	FW, not in S. FL
Round ebonyshell (<i>Fusconaia rotulata</i>)	Yes	X							X	FW, not in S. FL
Narrow pigtoe (<i>Fusconaia escambia</i>)	Yes	X							X	FW, not in S. FL
Fuzzy pigtoe (<i>Pleurobema strodeanum</i>)	Yes	X							X	FW, not in S. FL
Choctaw bean (<i>Villosa choctawensis</i>)	Yes	X							X	FW, not in S. FL
Southern kidneyshell (<i>Ptychobranthus jonesi</i>)	Yes	X							X	FW, not in S. FL
Southern sandshell (<i>Hamiota australis</i>)	Yes	X							X	FW, not in S. FL
Tapered pigtoe (<i>Fusconaia burkei</i>)	Yes	X							X	FW, not in S. FL
Mollusks										
• Stock island tree snail (<i>Orthalicus reses</i> (not incl. nesodryas)						X			X	
Insects										
• Schaus swallowtail butterfly (<i>Heraclides arisodemos ponceanus</i>)						X			X	
American burying beetle (<i>Nicrophorus americanus</i>)						X				
Miami blue butterfly (<i>Cyclargus thomasi bethunebakeri</i>)						X			X	
Plants										
• American chaffseed (<i>Schwalbea americana</i>)						X				X
• Appalachian rosemary (<i>Conradina glabra</i>)						X				X
• Avon Park harebells (<i>Crotalaria avonensis</i>)						X			X	
• Beach jacquemontia (<i>Jacquemontia reclinata</i>)						X			X	
• Beautiful pawpaw (<i>Deeringothamnus pulchellus</i>)						X			X	X
• Britton's beargrass (<i>Nolina brittoniana</i>)						X			X	
• Brooksville bellflower (<i>Campanula robinisiae</i>)						X			X	

• Carter's mustard (<i>Warea carteri</i>)					X	X				
• Chapman's rhododendron (<i>Rhododendron chapmanii</i>)							X			
• Cooley's meadowrue (<i>Thalictrum cooleyi</i>)					X				X	
• Cooley's water-willow (<i>Justicia cooleyi</i>)					X					
• Crenulate lead-plant (<i>Amorpha crenulata</i>)					X					
• Deltoid spurge (<i>Chamaesyce deltoidea</i> ssp. <i>deltoides</i>)										
• Etonia rosemary (<i>Conradina etonia</i>)					X					
• Florida bonamia (<i>Bonamia grandiflora</i>)					X					
• Florida golden aster (<i>Chrysopsis floridana</i>)					X					
• Florida perforate cladonia (<i>Cladonia perforata</i>)					X					
• Florida skullcap (<i>Scutellaria floridana</i>)					X					
• Florida torreyia (<i>Torreya taxifolia</i>)					X					
• Florida ziziphus (<i>Ziziphus celata</i>)					X					
• Four-petal pawpaw (<i>Warea carteri</i>)					X					
• Fragrant prickly-apple (<i>Cereus eriophorus</i> var. <i>fragrans</i>)										
• Fringed campion (<i>Silene polypetala</i>)					X					
• Garber's spurge (<i>Chamaesyce garberi</i>)					X					
• Garrett's mint (<i>Dicerandra christmanii</i>)					X					
• Gentian pinkroot (<i>Spigelia gentianoideis</i>)					X					
• Godfrey's butterwort (<i>Pinguicula ionantha</i>)					X					
• Harper's beauty (<i>Harperocallis flava</i>)					X					
• Highlands scrub hypericum (<i>Hypericum cumulicola</i>)										
• Key tree-cactus (<i>Pilosocereus robinii</i>)					X					
• Lakela's mint (<i>Dicerandra immaculata</i>)					X					
• Lewton's polygala (<i>Polygala lewtonii</i>)					X					
• Longspurred mint (<i>Dicerandra cornutiissima</i>)					X					
• Miccosukee gooseberry (<i>Ribes echinellum</i>)					X					

• Okeechobee gourd (Cucurbita okeechobeensis ssp. okeechobeensis)					X	X	X		
• Papery whilow-wort (Paronychia chartacea)					X	X	X	X	
• Pigeon wings (Clitoria fragrans)					X	X	X		
• Pygmy fringe-tree (Chionanthus pygmaeus)					X	X	X		
• Rugel's pawpaw (Deeringothamnus rugelii)					X	X	X		
• Sandlance (Polygonella myriophylla)					X	X	X		
• Scrub blazing star (Liatris ohlingerae)							X		
• Scrub buckwheat (Eriogonum longifolium var. gnaphalifolium)					X	X	X		
• Scrub lupine (Lupinus aridorum)					X	X	X		
• Scrub mint (Dicerandra frutescens)					X		X		
• Scrub plum (Prunus geniculata)					X	X	X		
• Short-leaved rosemary (Conradina brevifolia)					X		X		
• Small's milkpea (Galactia smallii)					X		X		
• Snakeroot (Eryngium cuneifolium)					X			X	
• Telephus spurge (Euphorbia telephioides)					X				
• Tiny polygala (Polygala smallii)					X		X		
• White birds-in-a-nest (Macbridea alba)					X			X	
• Wide-leaf wara (Warea amplexifolia)					X	X	X		
• Wireweed (Paronychia chartacea)					X		X		

Attachment E : NMFS-Specific Species List

KEY:

Yellow Highlights = Aquatic or Aquatic-Dependent, but not applicable to rule

Blue Highlights = Included in Rule

NMFS Florida Species and Critical Habitat

Individual Species	Critical Habitat	Aquatic Species	Candidate species	No effect?	Notes
Mammals					
Blue whale (<i>Balaenoptera musculus</i>)		X		NE	Not in FL coastal waters
Finback whale (<i>Balaenoptera physalus</i>)		X		NE	Not in FL coastal waters
Humpback whale (<i>Megaptera novaeangliae</i>)		X		NE	Not in FL coastal waters
North Atlantic right whale (<i>Eubalaena glacialis</i>)	CH	X			CH = Sebastian Inlet, FL to Altamaha River, GA
Sei whale (<i>Balaenoptera borealis</i>)		X		NE	Not in FL coastal waters
Sperm whale (<i>Physeter macrocephalus</i>)		X		NE	Not in FL coastal waters
Reptiles					
Green sea turtle (<i>Chelonia mydas</i>)		X			
Hawksbill sea turtle (<i>Eretmochelys imbricata</i>)		X			
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)		X			
Leatherback sea turtle (<i>Dermochelys coriacea</i>)		X			
Loggerhead sea turtle (<i>Caretta caretta</i>)		X			
Fish					
Gulf sturgeon (<i>Acipenser oxyrinchus desotoi</i>)	CH	X			CH = Marine environments associated with Escambia, Blackwater, Yellow, Choctawhatchee, Apalachicola and Suwannee Rivers.
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)		X			

Attachment E : NMFS-Specific Species List

Smalltooth sawfish (<i>Pristis pectinata</i>)	CH	X				CH = Two units: Charlotte Harbor Estuary Unit and Ten Thousand Islands/Everglades Unit. (Any CH in Everglades is covered by TP criterion already in effect for Everglades)
		X		X		
Atlantic sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>)		X		X		
Largetooth sawfish (<i>Pristis pristis</i>)		X		X	NE	Extirpated in US waters
Invertebrates						
Elkhorn coral (<i>Acropora palmata</i>)	CH	X				
Staghorn coral (<i>Acropora cervicornis</i>)	CH	X				
Seagrasses						
Johnson's seagrass (<i>Halophila johnsonii</i>)	CH	X				